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SECOND SESSION OF THE FOURTEENTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1923

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3. Report of the Department of Customs and Excise, containing accounts of revenue with statements relative to the Imports, Exports, and Excise of the Dominion of Canada, for the fiscal year ended March 31, 1922. Presented February 6, 1923.
Printed for distribution and sessional papers.

4. Shipping Report of the Department of Customs and Excise, containing the Statements of Navigation and shipping of the Dominion of Canada for the fiscal year ended March 31, 1922. Presented February 6, 1923.
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5. Thirtieth Annual Report of the Department of Trade and Commerce, for the fiscal year ending March 31, 1922. Presented February 1, 1923.
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7. Report relating to Mail Subsidies and Steamship Subventions for the fiscal year ending March 31, 1922, with traffic returns, etc., to December 31, 1922. Presented April 11, 1923.....*Printed for distribution and sessional papers.*

8. Annual Report of the Weights and Measures, Electricity and Gas Inspection Services of the Department of Trade and Commerce for the fiscal year ending March 31, 1922. Presented February 1, 1923....*Printed for distribution and sessional papers.*

9. Report of the Commissioner of Patents for the fiscal year ending March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

10. Annual Report of the Dominion Statistician, for the fiscal year ended March 31, 1922. Presented March 27, 1923.....*Printed for distribution and sessional papers.*

12. Annual Report of the Department of the Interior, for the fiscal year ended March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

13. Annual Report of the Department of Immigration and Colonization, for the fiscal year ended March 31, 1922. Presented February 1, 1923.
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16. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended March 31, 1922. Presented February 1, 1923.
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17. Report of the Department of Militia and Defence, for the fiscal year ending March 31, 1922. Presented February 1, 1923..*Printed for distribution and sessional papers.*

17a Report of the Department of the Naval Service, for the fiscal year ending March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

18. Report of the work of the Department of Soldiers' Civil Re-establishment, for the year ending December 31, 1922. Presented February 12, 1923.
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19. Report of the Department of Health, for the fiscal year ended March 31, 1922. Presented February 5, 1923.....*Printed for distribution and sessional papers.*

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21. Report of the Royal Canadian Mounted Police for the year ended September 30, 1922. Presented February 16, 1923.....*Printed for distribution and sessional papers.*

22. Report of the Secretary of State of Canada, for the year ended March 31, 1922. Presented February 2, 1923.....*Printed for distribution and sessional papers.*

24. Fourteenth Annual Report of the Civil Service Commission of Canada for the year ended December 31, 1922. Presented June 14, 1923.
Printed for distribution and sessional papers.

25. Report of the Secretary of State for External Affairs for the year ended March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

26. Report of the Department of Labour for the fiscal year ended March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

27. Annual Report of the Department of Public Printing and Stationery for the fiscal year ended March 31, 1922. Presented February 1, 1923.
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28. Fifty-fifth Annual Report of the Department of Marine and Fisheries, for the year 1921-22—Marine. Presented February 2, 1923.
Printed for distribution and sessional papers.

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29. Fifty-fifth Annual Report of the Fisheries Branch of the Department of Marine and Fisheries, for the year 1921-22. Presented February 2, 1923.
Printed for distribution and sessional papers.

30. Report of the Postmaster General for the year ended March 31, 1922. Presented February 1, 1923.....*Printed for distribution and sessional papers.*

30. Report of the Public Archives for the year 1921. Presented February 6, 1923.
Printed for distribution.

31. Report of the Minister of Public Works on the works under his control for the fiscal year ended March 31, 1922. Presented February 1, 1923.
Printed for distribution and sessional papers.

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32. Annual Report of the Department of Railways and Canals, for the fiscal year from April 1, 1921, to March 31, 1922. Presented February 1, 1923.
Printed for distribution and sessional papers.

33. Eighteenth Annual Report of the Board of Railway Commissioners for Canada, for the year ended December 31, 1922. Presented (manuscript) April 9, 1923.
Printed for distribution and sessional papers.

34. Report of the Chief Electoral Officer for 1922. Presented January 31, 1923.
Not printed.

34*a*. Report on By-Elections for the House of Commons of Canada, held during the year 1922. Presented February 8, 1923.....*Printed for distribution and sessional papers.*

35. Joint Report of the Canadian Delegates, Sir Charles Gordon, G.B.E., and Professor Edouard Montpetit, K.C., LL.D., M.R.S.C., of the Genoa Conference for the economic and financial reconstruction of Europe, held from April 10 to May 19, 1922. Presented February 1, 1923.
Printed for sessional papers and distribution to Senators and Members.

36. Report of the Canadian Delegates, Hon. W. S. Fielding, Hon. Ernest Lapointe and Hon. Peter C. Larkin, to the Third Assembly of the League of Nations, September 3 to 30, 1922. Presented February 1, 1923.
Printed for sessional papers and distribution to Senators and Members.

37. *Appendix* to the Report of the Joint Librarians of Parliament for 1922. Presented January 31, 1923.....*Not printed.*

38. Statement of Governor General's Warrants issued since last session of Parliament on account of 1922-23. Statement of the Auditor General respecting over-rulings by the Treasury Board on decisions of the Auditor General. Presented February 1, 1923.....*Not printed.*

39. Statement of Expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1922, to the 31st January, 1923, in accordance with the Appropriation Act, 1922-23. Presented February 1, 1923.....*Not printed.*

40. Statement of Temporary Loans under Chapter 24, Section 13, R.S. (Consolidated Revenue and Audit Act). Presented February 1, 1923.....*Not printed.*

41. Statement of endorsements made or liabilities incurred under the provisions of Chapter 70, 10-11 Geo. V, An Act respecting the Shipbuilding Industry. Presented February 1, 1923.....Not printed.

42. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ended December 31, 1922, under Chap. 17, R.S.C., 1906, showing name, rank, salary, age, service allowance and cause of retirement of each person superannuated or retired, also whether the vacancy has been filled by promotion, or by appointment, and the salary of any new appointee. Presented February 1, 1923.
Not printed.

43. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending March 31, 1922. Presented February 1, 1923.....*Not printed.*

44. Statement of Returned Soldiers' Insurance, for the year ended 31st March, 1922. Presented February 1, 1923.....*Not printed.*

45. Report of the Superintendent of Insurance of the Dominion of Canada for the year ended December 31, 1921—Volume I, Insurance Companies other than Life; Volume II, Life Insurance Companies. Presented February 1, 1923.
Presented in printed form.

46. Abstract of Statements of Loan and Trust Companies in Canada, for the year ended December 31, 1921. Presented February 1, 1923.....*Presented in printed form.*

47. Statement of the Receipts and Expenditures of the Royal Society of Canada, for the year ended April 30, 1922. Presented February 1, 1923.....*Not printed.*

48. Statement of Receipts and Expenditures of the National Battlefields Commission for the year ended March 31, 1922. Presented February 1, 1923.....*Not printed.*

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49. Report of the Ottawa Improvement Commission for the fiscal year ended March 31, 1922. Presented February 1, 1923.....*Not printed.*

50. Lists of Shareholders in the Chartered Banks of the Dominion of Canada as on December 31, 1922. Presented February 1, 1923.....*Not printed.*

50*a*. Lists of Unclaimed Balances, etc., in Canadian Chartered Banks, in accordance with Section 114, Chap. 9, Acts of 1913 (The Bank Act). Presented February 1, 1923. *Not printed.*

50*b*. Lists of Shareholders in Quebec Saving Banks; Lists of Unclaimed Balances, etc., in Quebec Savings Banks—made in accordance with Sections 58 and 59 of Chap. 42, Acts of 1913 (Quebec Savings Bank Act). Presented February 1, 1923. *Not printed.*

51. Copies of Orders in Council in respect to the Department of National Defence under the provisions of Section 47, Chapter 43, 9-10 Edward VII, as follows: P.C. 1964, dated September 21, 1922, *re* Regulations for payment of transportation to dependents of Naval Officers and Men transferred from one Naval Station to another in Canada. P.C. 2224, dated October 27, 1922, *re* amending Pay and Allowances Regulations (Clerk to Senior Naval Officer). P.C. 2346, dated November 11, 1922, *re* entry of Instructors, Royal Canadian Naval Volunteer Reserve. P.C. 79, dated January 15, 1923, *re* authorizing formation of Canadian Naval Reserve. P.C. 80, dated January 15, 1923, *re* authorizing Regulations for the organization and maintenance of The Canadian Naval Reserve. Presented February 1, 1923. *Not printed.*

51*a*. P.C. 139, of January 31, 1923, authorizing formation of the Canadian Naval Volunteer Reserve. P.C. 140, of January 31, 1923, authorizing Regulations for the Canadian Naval Volunteer Reserve. Presented February 13, 1923.....*Not printed.*

51*b*. P.C. 202, dated February 7, 1923, authorizing Pay and Allowances of Petty Officer Instructors in Canadian Naval Volunteer Reserve. Presented February 16, 1923 *Not printed.*

51*c*. P.C. 64, dated February 15, 1923, authorizing an allowance to cover moving expenses for Royal Canadian Naval ratings. Presented March 6, 1923.....*Not printed.*

51*d*. P.C. 391, of March 5, 1923, amending Rates of Pay and Allowances for the Royal Canadian Navy. Presented March 16, 1923.....*Not printed.*

51*e*. P.C. 781, dated May 2, 1923, amending Regulations for the Royal Canadian Naval Volunteer Reserve in respect to the age limit of enrolment of graduates from the Royal Naval College of Canada. Presented May 8, 1923.....*Not printed.*

51*f*. P.C. 716, dated April 25, 1923, regarding Pay of Royal Canadian Naval Officers serving in the Royal Navy. Presented May 18, 1923.....*Not printed.*

51*g*. P.C. 1006, dated May 31, 1923—Amendments to Naval Service Pay and Allowance Regulations—Pay of Headquarters Supervising Officer. Presented June 20, 1923. *Not printed.*

52. Copies of General Orders promulgated to the Militia for the period between February 2, 1922, and February 1, 1923. Presented February 1, 1923. *Presented in printed form.*

53. Appointments, Promotions and Retirements, Canadian Militia and Canadian Expeditionary Force, from February 2, 1922, to February 1, 1923. Presented February 1, 1923..... ....*Presented in printed form.*

54. Copies of Militia Orders promulgated between February 2, 1922, and February 1, 1923. Presented February 1, 1923.....*Presented in printed form.*

55. Copy of Order in Council, P.C. 115, dated January 20, 1923, entrusting to the Canadian National Railway Company the management and operation of the Canadian Government railways. Presented February 1, 1923.....*Not printed.*

55*a*. P.C. 2094, dated October 4, 1922, nominating Directors of the Canadian National Railway Company. Presented February 2, 1923.....*Not printed.*

Contents of Volume 6—*Continued*

55*b*. Return to an Address to His Excellency the Governor General of the 5th March, 1923, for a copy of all Orders in Council passed since the first day of January, 1922, in any way relating to the Canadian National Railways or any railway now forming part of the National System. Presented April 26, 1923. Sir Henry Drayton..... *Not printed.*

56. Return showing the number of permits granted to take intoxicants into the North West Territories, for the year ended December 31, 1922, in accordance with the provisions of the Revised Statutes, Chapter 62, Section 88. Presented February 1, 1923..... *Not printed.*

57. Ordinances passed during the period February 28, 1922, to January 18, 1923, in accordance with provisions of Section 11, Chapter 62, Revised Statutes of Canada, 1906, Northwest Territories Act. Presented February 1, 1923..... *Not printed.*

58. Statement showing the number of Enfranchisements under the Indian Act, from April 1, 1922, to January 31, 1923. Presented February 1, 1923.....*Not printed.*

59. Return of Orders in Council which have been published in the *Canada Gazette*, between February 2, 1922, and December 30, 1922, in accordance with the provisions of Section 77 of "The Dominion Lands Act," Chapter 20, 7-8 Edward VII. Presented February 1, 1923.....*Not printed.*

60. Return of Orders in Council which have been published in the *Canada Gazette* between February 2, 1922, and December 30, 1922, in accordance with the provisions of Section 19, Chapter 10, 1-2 George V,—"The Forest Reserves and Parks Act." Presented February 1, 1923.....*Not printed.*

61. Copies of Orders in Council passed between February 2, 1922, and December 30, 1922, approving of regulations and forms prescribed in accordance with the provisions of Section 4, Chapter 18, 1917, "Migratory Birds Convention Act." Presented February 1, 1923.....*Not printed.*

62. Return of Orders in Council which have been published in the *Canada Gazette*, between February 2, 1922, and December 30, 1922, in accordance with the provisions of Section 5 of "The Dominion Lands Survey Act," Chapter 21, 7-8 Edward VII. Presented February 1, 1922.....*Not printed.*

63. Return of Orders in Council which have been published in the *Canada Gazette* and in the *British Columbia Gazette*, between February 2, 1922, and December 30, 1922, in accordance with provisions of Subsection (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion Lands within the 40-mile Railway Belt in the Province of British Columbia. Presented February 1, 1923.....*Not printed.*

64. Copy of Rules and Regulations of the Board of Grain Commissioners in respect to Country Elevators. Presented February 1, 1923.....*Not printed.*

65. Report of the Director of Dominion Experimental Farms for the fiscal year ended March 31, 1922. Presented February 1, 1923.... *Presented in printed form.*

66. Regulations under "The Destructive Insect and Pest Act," pursuant to Section 9, Chapter 31 of 9-10 Edward VII. Presented February 1, 1923.....*Not printed.*

67. Return of leases of wharves, piers and breakwaters. Presented February 2, 1923. *Not printed.*

68. Return of tolls and dues of Government harbours, etc., for the year 1921. Presented February 2, 1923.....*Not printed.*

69. Report of the Canadian Battlefields Memorials Commission from April 1, 1922, to date. Presented February 2, 1923.....*Not printed.*

70. Copy of P.C. 2095, dated October 4, 1922, accepting resignations of the Directors of the Grand Trunk Railway Company of Canada, and appointing others in their stead. Presented February 2, 1923.....*Not printed.*

Contents of Volume 6—*Continued*

70a. Copy of P.C. 114, dated January 19, 1923, declaring that the whole of the preference and common stock of the Grand Trunk Railway of Canada is the property of the Government of Canada, in accordance with the Judgment of the Judicial Committee of the Privy Council; and directing that proper entries thereof in the stock registers and other books of the Company in that behalf shall forthwith be made. Presented February 2, 1923.....*Not printed.*

70b. Copy of P.C. 181, dated January 30, 1923, amalgamating the Grand Trunk Railway Company of Canada with the Canadian National Railway Company. Presented February 2, 1923.....*Not printed.*

71. Ordinances of the Yukon Territory passed by the Yukon Council, Second Session, 1921, and in the year 1922. Presented February 5, 1923.
Presented in printed form.

72. Convention of Commerce between France and Canada entered into at Paris on the 15th day of December, in the year 1922, between His Majesty The King and the President of the French Republic. Presented February 5, 1923.
Presented in printed form.

72a. Copy of Convention of Commerce between Canada and France, 1922.—Particulars relating to Customs Tariff Rates in France. Presented March 19, 1923.
Presented in printed form.

73. Amendments to Regulations made under the authority of the Soldier Settlement Act, 1919, pursuant to subsection 2, of section 63. Presented February 5, 1923.
Not printed.

74. Copy of Order in Council, P.C. No. 2413, dated November 20, 1922, in respect to Regulations made under the Proprietary or Patent Medicine Act, as amended by Chap. 66, 9-10 Geo. V. Presented February 5, 1923.....*Not printed.*

75. Report of the proceedings of the Commissioners of Internal Economy of the House of Commons for 1922. Presented February 5, 1923.....*Not printed.*

76. Copies of Orders in Council Nos. P.C. 1459 and P.C. 2416, of 1922, approving tariffs of fees of elections officers under section 76 of the Dominion Elections Act. Presented February 6, 1923.....*Not printed.*

77. Report of the administrative chairman of the Honorary Advisory Council for Scientific and Industrial Research of Canada, for the year ending March 31, 1922. Presented February 6, 1923.....*Not printed.*

77a. Financial Statement of the Honorary Advisory Council for Scientific and Industrial Research of Canada, for the year ended March 31, 1922. Presented February 6, 1923.....*Not printed.*

78. Copy of a Convention respecting the Commercial Relations between Italy and Canada entered into at London the 4th day of January, 1923, between His Majesty the King of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, etc., and His Majesty the King of Italy. Presented February 6, 1923.....*Presented in printed form.*

79. Amendments to Radiotelegraph Regulations Nos. 1 and 2, approved by the Governor in Council; and Regulations Nos 1 to 32, inclusive, 72, 75, 76, 77, 78, 88 (a) and 97, issued by the Minister of the Department of Marine and Fisheries. Presented February 8, 1923.....*Not printed.*

79a. Amendment to "Private Commercial Broadcasting License, Form W. 69."; Amendment to Radiotelegraph Regulations, "Licenses" No. 2 (b). Presented May 23, 1923.....*Not printed.*

80. Detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (March 9, 1922), submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented February 8, 1923.....*Not printed.*

Contents of Volume 6—*Continued*

81. Return to an Order of the House of the 14th June, 1922, for a return showing a statement of all moneys paid by the Government of Canada or any department thereof, to barristers and solicitors of the various provinces of Canada for legal services in connection with the arbitration concerning the Canadian Northern Railway and the Dominion of Canada, and the Grand Trunk Railway and the Dominion of Canada, said statement to set forth retainers, per diem pay, expense allowances, number of days employed and the names of the barristers and solicitors so engaged. Presented February 9, 1923. Mr. Martell.....*Not printed.*

81*a*. Return to an Order of the House of the 19th March, 1923, for a copy of the bills for living allowances and disbursements, retainers, certificates of taxation and authorities to act on behalf of the Government, of W. N. Tilley, K.C., H. A. Lovett, K.C., Hector McInnes, K.C., J. C. H. Dusseault, K.C., E. F. Newcombe, Z. A. Lash, K.C., Pierce Butler of Minneapolis, T. Ludlow Christie of New York, Laurence Jones & Co. of London, England, Charles Russell & Co. of London, England, in connection with the Grand Trunk Arbitration and the legislation upon which such proceedings were based. Presented April 25, 1923. Mr. d'Anjou...*Not printed.*

82. Return to an Order of the House of the 7th June, 1922, for a copy of all letters, telegrams, reports, correspondence and other documents embodying the representations made to the Minister of Public Works with reference to the dismissal of Charles Dauphinee as janitor of public building at Lunenburg, Nova Scotia, and which representations were referred to by the Honourable Minister as considered by him as being satisfactory to warrant the dismissal of Dauphinee without investigation. Presented February 9, 1923. Hon. Mr. Baxter.....*Not printed.*

83. Report under section 7 of the Reclamation Act, 9-10, George V, showing the drainage works constructed, the area of land reclaimed, the expenditure and money received from the sale or lease of Dominion Lands. Presented February 12, 1923.
Not printed.

84. Supplementary Rules, Regulations and Forms prescribed under the provisions of section 54 of the Irrigation Act. Presented February 12, 1923.....*Not printed.*

85. Return showing all lands sold by the Canadian Pacific Railway Company during the year ended September 30, 1922, together with the names of the purchasers, in accordance with 49 Victoria, Chapter 9, Section 8. Presented February 12, 1923.
Not printed.

85*a*. Return to an Order of the House of the 11th June, 1923, for a Return showing:—1. The amount of land held by the Canadian Pacific Railway along its own lines. 2. The amount of land held by the Canadian Pacific Railway along Canadian National lines. 3. The amount of land sold by the Canadian Pacific Railway Company along its own lines in the past five years, and the average price per acre obtained. 4. The amount of land sold by the Canadian Pacific Railway Company along Canadian National lines in the past five years and the average price per acre obtained. Presented June 28, 1923. Mr. Lucas.....*Not printed.*

86. Report on "The Agricultural Instruction Act," 1921-22, pursuant to Section 8, Chapter 5 of 3-4 George V. Presented February 13, 1923.....*Presented in printed form.*

86*a*. Copy of a Report of Duncan Marshall on the operation of the Agricultural Instruction Act, during the past ten years, and recommendations as to future financial aid to the provinces for the continuation and development of agricultural instruction. Presented April 18, 1923.....*Not printed.*

87. Sixth Annual Report of the Editorial Committee on Government Publications, dated January 30, 1923. Presented February 15, 1923.....*Presented in printed form.*

88. Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1924. Presented February 16, 1923.....*Presented in printed form.*

88*a*. Details of Civil Government Estimates, for the year ending March 31, 1924. Presented March 2, 1923.....*Presented in printed form.*

88*b*. Further Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1923. Presented March 28, 1923.
Presented in printed form.

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88*c*. Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1924. Presented March 28, 1923.
Presented in printed form.

88*d*, **88***e*. Further Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1924. Presented June 26 and 28, 1923.
Presented in printed form.

89. List of Leases, Licenses, Permits or other authorities cancelled under the provisions of Section 3, Chapter 21, of the Statutes of 1922, An Act respecting Notices of Cancellation of Leases of Dominion Lands. Presented February 19, 1923.
Not printed.

90. Return to an Order of the House of the 12th February, 1923, for a copy of all correspondence, papers, writings, documents, etc., passing between the Minister of Labour and John L. Lewis since taking office by the present Minister of Labour. Presented February 22, 1923, Rt. Hon. Mr. Meighen.....*Not printed.*

91. Report of the Board of Pension Commissioners for Canada for the year ending March 31, 1922. Presented February 22, 1923.....*Presented in printed form.*

91*a*. Report of the Board of Pension Commissioners for Canada for the year ending March 31, 1923. Presented June 30, 1923.....*Presented in printed form.*

92. Copy of Agreement between His Majesty the King and Sir Henry Worth Thornton, K.B.E., to act as directing head of the railways, steamships and other undertakings comprised in the Canadian National Railway System. Presented February 23, 1923.
Not printed.

93. Return to an Order of the House of the 21st February, 1923, for a return showing all regulations and conditions passed by the Governor in Council under Section 11, Chapter 13, of the Statutes of 1919, being the Canadian National Railway Act. Presented February 26, 1923. Mr. MacLaren.....*Not printed.*

94. Return to an Order of the House of the 12th February, 1923, for a Return showing: 1. During the last completed annual accounting period the amount of revenue, freight and passenger traffic originating on the different divisions of the Grand Trunk Railway in the Provinces of Quebec and Ontario, and the earnings therefrom. 2. During the last completed annual accounting period the amount of revenue, freight and passenger traffic originating on the Grand Trunk Railway in the cities of Montreal, Ottawa, Toronto, and Hamilton, and the earnings therefrom. 3. During the last completed annual accounting period the amount of freight moving in less than carload lots from the cities of Montreal, Ottawa, Toronto and Hamilton on the Grand Trunk Railway, and the earnings therefrom. 4. During the last completed annual accounting period the number of way freight trains operated, their mileage and earnings, from the cities of Montreal, Ottawa, Toronto and Hamilton on the Grand Trunk Railway. 5. During the last completed annual accounting period the amount of revenue, freight and passenger traffic originating on the different divisions of the Canadian National Railways in the Provinces of Quebec and Ontario, and the earnings therefrom. 6. During the last completed annual accounting period the amount of revenue, freight and passenger traffic originating on the Canadian National Railways in the cities of Montreal, Ottawa, Toronto and Hamilton, and the earnings therefrom. 7. During the last completed annual accounting period the amount of freight moving in less than carload lots from the cities of Montreal, Ottawa, Toronto and Hamilton on the Canadian National Railways, and the earnings therefrom. 8. During the last completed annual accounting period the number of way freight trains operated, their mileage and earnings from the cities of Montreal, Ottawa, Toronto and Hamilton, on the Canadian National Railways. Presented February 26, 1923. Sir Henry Drayton.....*Not printed.*

95. Return to an Order of the House of the 19th February, 1923, for a Return showing: 1. Whether the supervision over the manufacture of oleomargarine, the inspection and analysis thereof appertain to that branch of the Department of Health relating to pure food for the people or to that branch of the Department of Agriculture relating to the health of animals. 2. Firms, corporations or individuals granted licenses under the Oleomargarine Act of 1922 to re-work and adulterate butter by incorporating therewith baser and cheaper materials. 3. Whether the manufacturers of butter are allowed to adulterate the same by adding thereto baser or cheaper

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ingredients. 4. Quantity of oleomargarine manufactured in Canada during the past fiscal year. 5. Quantity of butter re-worked and incorporated into the oleomargarine manufactured in Canada during the period referred to. 6. Whether it is compulsory to show on the wrapper or label attached, the ingredients contained in oleomargarine, manufactured in or imported into Canada. 7. Whether it is compulsory to show on the wrapper or label attached, all oleomargarine manufactured wholly from vegetable oils, or which contains no butter. 8. Quantity and to what countries butter has been exported from Canada during the past fiscal year. 9. Quantity and from what countries butter has been imported into Canada during the past year. 10. Rate of duty collected on the butter imported into Canada and from whence it came. 11. Amount of duty collected on the butter imported into Canada during the past year. 12. Rate of duty collected on salt imported for use in the manufacture of oleomargarine. 13. Rate of duty collected on salt imported for use in the manufacture of butter or cheese. 14. Duty on milking machines and amount of duty collected on such imports during the past year. Presented February 26, 1923. Mr. Sutherland.....*Not printed.*

96. Return to an Order of the House of the 12th February, 1923, for a copy of all correspondence, letters, telegrams and other documents exchanged between the Department of Inland Revenue, any officer of the said department, or any other department of the Government, and the Scale Inspector at Lindsay, Ontario, or any other person or persons, relative to the Lindsay Market Scales or Lindsay Market Clerk and District Inspector F. D. Diamond, of Belleville, or Senior Inspector G. H. Howson, of Peterboro. Presented February 26, 1923. Mr. Thurston.....*Not printed.*

97. Return to an Order of the House of the 21st of February, 1923, for a Return showing: 1. Whether any merchandise, material, or supplies of any kind was purchased on emergency requisitions for use at the Maritime Penitentiary at Dorchester, New Brunswick, between January 1, 1922, and December 31, 1922. 2. If so, what goods were purchased, what quantities of each kind and on what dates. 3. From what persons, firms or corporations were said purchases made and the business address of said persons, firms or corporations. Presented February 26, 1923. Mr. Michaud. *Not printed.*

98. Return to an Order of the House of the 26th February, 1923, for a Return showing: 1. What road projects have been submitted to the Dominion Government by the Ontario Department of Public Works for approval, under the Canada Highways Act. 2. What projects have been approved. 3. The estimated cost of these road projects and the mileage as submitted by the Ontario Department of Public Works. 4. The amounts paid by the Dominion Government on these approved road projects. 5. The amount payable to the Province of Ontario under the Canada Highways Act. 6. Of the estimated cost of projects submitted, what would 40 per cent of the reasonable cost amount to. 7. If any request has been made by the Ontario Government for further cash assistance, other than that contained in the Dominion Highways Act. Presented February 26, 1923. Mr. Wilson.....*Not printed.*

99. Return to an Order of the Senate dated June 8, 1922, showing copies of all agreements between the Government or any department of the Government and the Acadia Coal Company in respect to the railway between New Glasgow and Thorburn in Nova Scotia. Presented February 27, 1923. Hon. Mr. Tanner.....*Not printed.*

100. Supplementary Return to an Order of the Senate dated April 27, 1922, showing: 1. The quantity of (*a*) bituminous and (*b*) anthracite coal imported from the United States into Canada in each of the years 1896 until 1921, inclusive. 2. The quantity of (*a*) bituminous and (*b*) anthracite coal imported from the United States into Canada in each of the years 1896 until 1921, inclusive, by the Government of Canada for use upon (1) railways; (2) Federal buildings and public works. 3. The amount of (*a*) bituminous and (*b*) anthracite coal imported by the Government of Canada from the United States during the above-mentioned years for use upon railways (1) East of Lake Superior; (2) West of Lake Superior. 4. The cost of such coal per ton imported by the Government of Canada from the United States during the above-mentioned years (1) at point of production; (2) at point of Canadian delivery. Presented February 27, 1923. Hon. Mr. Tanner. *Not printed*

Contents of Volume 6—*Continued*

101. Return to an Order of the Senate, dated May 16, 1922, showing copy of all letters, telegrams, memoranda, exchanged between the Harbour Commissioners of Quebec, the Department of Marine and Fisheries and La Compagnie du Parc St-Charles Land, Ltd, also letters and telegrams exchanged between Ministers of the Government and attorneys of said Land Company; copies of judgments of the various courts in relation thereto and report of the proceedings before the Royal Commission appointed in 1921. Presented February 27, 1923. Hon. Mr. Casgrain.
Not printed.

102. Partial Return to an Order of the Senate dated March 22, 1922, for a statement showing the number of employees appointed in the different departments of the Government each year since 1911, up to 1922, and the increase of cost of the Civil Service since 1911. Presented February 27, 1923. Hon. Mr. David.
Not printed.

103. Return to an Order of the House of the 28th February, 1923, for a Return showing: 1. What part or parts of Dundas Street between Toronto and London have been completed by the Provincial Department of Highways. 2. Number of miles completed. 3. The actual cost per mile. 4. Number of miles approved by the Dominion Department of Highways. 5. Amount paid to the Province of Ontario on account of the approved parts of this road. 6. The estimated cost per mile. 7. Number of miles of this road which have been completed within the County of Halton and the number of miles approved in the said County. 8. Whether the actual cost has exceeded the estimated cost or a reasonable cost for this section of the road. 9. If so, how much. Presented February 28, 1923. Mr. Anderson.
Not printed.

104. Return to an Order of the House of the 28th February, 1923, for a Return showing: What, if any, rulings, orders or regulations have been made or adopted which exempt or declare to be exempt from the operations of the sales tax, purchases when made by certain individuals, organizations or companies, or what, if any, rebates or remissions have been made or authorized to be made in respect of taxes payable under the sales tax. Presented February 28, 1923. Sir Henry Drayton.
Not printed.

105. Return to an Order of the House of the 26th February, 1923, for copy of all correspondence, reports and memoranda, relative to the claim of Orin Campbell against the Department of Railways and Canals, in respect to his claim for damages arising out of the work at Nassau, near Peterborough. Presented March 2, 1923. Mr. Clifford .....*Not printed.*

106. Return to an Order of the House of the 26th February, 1923, for a return showing the freight and express rates charged on apples and vegetables shipped from Windsor, in the County of Hants, Nova Scotia, to the City of Montreal, Quebec, and the cities of Ottawa and Toronto, Ontario, together with a complete statement as to the reason for the fixing of said rates or charges, and including a copy of all evidence upon which the same has been determined. Presented March 2, 1923. Mr. Martell.....*Not printed.*

107. Copies of Orders in Council, under the various Peace Treaties Acts, on the files of the Department of External Affairs. Presented March 2, 1923.....*Not printed.*

108. Detailed statement of Remissions of Customs Duties, Excise Taxes and Sales Taxes and the Refund thereof, under Section 92, Consolidated Revenue and Audit Act, through the Department of Customs and Excise, for the fiscal year ended March 31, 1922. Presented March 2, 1923..... *Not printed.*

109. Third Annual Report of retirements under the Public Service Act, 1920, as amended, 1921 and 1922, authorized by Orders in Council passed from January 1 to December 31, 1922. Presented March 5, 1923.....*Not printed.*

110. Return to an Order of the House of the 5th March, 1923, for a Return showing: 1. Plans for roads submitted by the Quebec Government, for the approval of the Dominion Government, by virtue of the Highways Act. 2. What plans were approved. 3. Sums paid by the Dominion Government towards these approved roads. Presented March 5, 1923. Mr. Prevost.....*Not printed.*

Contents of Volume 6—*Continued*

111. Copy of a Convention dated the second day of March, 1923, entered into at Washington, between His Majesty the King and the President of the United States of America, respecting the halibut fisheries of the Northern Pacific Ocean, including Behring Sea. Presented March 6, 1923.....*Not printed.*

111*a*. Return to Address to His Excellency the Governor General, of the 12th March, 1923, for a copy of all correspondence, papers, communications, cablegrams, telegrams, writings, documents, etc., passing between the Government of Canada or any member thereof and the Government of Great Britain or any member thereof or the representatives respectively of other governments referring to the recent negotiations for and to the execution of a treaty with the United States respecting Halibut Fisheries, and also between the Government of Canada or any member or representative thereof, and the British Ambassador at Washington respecting the same subject. Presented March 16, 1923. Rt. Hon. Mr. Meighen.
Printed for Sessional Papers and distribution to Senators and Members.

112, 112*a*. Returns to an humble Address of the Senate, dated February 6, 1923, for a Return showing: 1. The total number of persons, including Deputy Heads, employed on the 31st December, 1922, in the Civil Service and in all other positions in the Public Service of Canada to which the provisions of *The Civil Service Act, 1918,* and its amendments, apply as to the holidays to be observed. 2. The respective numbers of such persons employed:—(*a*) at Ottawa permanently; (*b*) at Ottawa temporarily; (*c*) elsewhere permanently; (*d*) elsewhere temporarily. 3. The totals of the amounts payable to such persons employd as in item (2) at that date, for: (*a*) annual or other salaries of permanent employees; (*b*) bonuses to permanent employees; (*c*) wages or other compensation of temporary employees; and (*d*) bonuses to temporary employees. 4. The respective amounts of the several totals in item (3) payable: (*a*) at Ottawa; (*b*) elsewhere. 5. As nearly as can be ascertained, the cost of one day's pay, as at the 31st December, 1922, of the persons then employed in the Civil Service and in the other positions referred to in item (1). Presented March 6 and April 11, 1923. Hon. Mr. Bradbury.
Not printed.

113. Return to an Order of the Senate, dated February 27, 1923, for a Return showing: 1. What was the volume of trade between Canada and the following countries: France, Spain, Italy, Belgium, Australia, Japan and China, for the years 1911, 1916, 1918 and 1921. 2. What was the volume of export trade from Canada to each of the said countries during the said years. 3. And also, what was the volume of imports into Canada from the said countries during the said years. Presented March 6, 1923. Hon. Mr. Schaffner.....*Not printed.*

114. Return to an Order of the House of 26th February, 1923, for a Return showing all accredited herds of pure bred cattle, and all herds under process of accreditation, by provinces, giving the names of owners of those fully accredited and also names of owners of herds under accreditation. Presented March 7, 1923. Mr. Caldwell.
Not printed.

115. Copy of Order in Council, P.C. 259, dated February 4, 1923, providing for the distribution of bounty under the provisions of chapter 46 of the Revised Statutes, 1906, "An Act to encourage the development of the Sea Fisheries and the building of Fishing Vessels." Presented March 7, 1923.....*Not printed.*

116. Copy of Order in Council, P.C. 74, dated January 15, 1923, *re* issue of licenses to United States fishing vessels for the purchase of bait, etc., the transhipment of catch, and the shipping of crews. Presented March 7, 1923.....*Not printed.*

117. Return to an Order of the House of the 21st February, 1923, for a return showing the amount of Fire Insurance placed on property of Soldier Settlers in the Province of Manitoba, under the Soldier Settlement Act; the names of the brokers who wrote the said insurance and the amount placed by each. The total amount of premiums paid to each of the several insurance companies placing said insurance, showing which of the said companies are Canadian, British and American, respectively. Presented March 7, 1923. Mr. McMurray.....*Not printed.*

118. Return to an Order of the House of the 12th February, 1923, for a copy of all correspondence, writings, telegrams, and other documents passing from the Government or the Canadian National Railways since August 1, 1922, having to do with the taking up of rails on the Hudson's Bay Railway. Presented March 7, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

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119. Return to an Order of the House of February 19, 1923, for a Return showing:—1. On what date and by what authority the Lignite Utilization Board of Canada was appointed. 2. Names, addresses and previous occupations of the several members of the said Board. 3. Total amount of money expended by the said Board to date, also the amounts expended during each of the several years since appointment. 4. Whether the said Board owe any money for goods, machinery or other materials supplied, goods, machinery or other materials ordered but not yet supplied, property purchased or agreed to be purchased, or services rendered or under contract. 5. If so, how much and what the details are. 6. Quantity, in short tons, of briquettes made, and the quantity in short tons, marketed, sold and paid for each year, and at what price f.o.b. Bienfait the briquettes manufactured, were sold in 1922. 7. Whether the briquettes produced during the year 1921-22 have been found by consumers to be satisfactory as fuel. 8. Whether the members of the Board were paid for their services or for expenses. 9. If so, what amounts were paid each year, and to whom, under both these headings. 10. Names of salaried officers employed by said Board, length of time employed, salaries paid, previous employment before being engaged by the Board, and salaries received by them in such previous employment. 11. What, if any, monetary obligations were undertaken by the Board in excess of or in anticipation of Government appropriations. 12. By whose authority fourteen expensively constructed houses, besides a probably necessary boarding house were erected. 13. Reasons for such constructions, in face of the continued failure of the works to make briquettes commercially. 14. Whether officials of the Government were employed, without remuneration from the Board, to do work for the said Board. 15. If so, the names of such officials and what estimated time they were so employed. 16. Whether it is the intention of the Government to continue the operations of the Board. Presented March 7, 1923. Mr. Irvine..... ....*Not printed.*

120. Return to an Order of the House of March 5, 1923, for a Return showing:—1. Quantity and value of each of the following commodities exported from Canada during the past year, and amount of duty payable (or collected) on each: (*a*) Agricultural machinery or farm equipments; (*b*) Meats; (*c*) Animal grease, oils or fats; (*d*) Milk and milk products; (*e*) Cattle, calf and sheep skins, green or salted; (*f*) Wool; (*g*) Eggs; (*h*) Apples, green; (*i*) Potatoes; (*j*) Fish and fishery products. 2. Quantity and value of each of the above commodities produced in Canada during the past year. Presented March 7, 1923. Mr. Garland (Bow River).....*Not printed.*

121, 121*a*. Returns to an Order of the House of the 12th February, 1923, for a Return showing:—1. The total number of employees in the inside Civil Service on the 31st March in each year since 1900 to the last nine months of 1922, inclusive. 2. The total amount paid in salaries (any bonus included) each year ending March 31, from 1900 to 1922 inclusive. 3. The total number of employees and salaries (including any bonus) paid them in each year from 1900 to 1922 inclusive in the following Departments:—Public Works, Customs, Post Office, Interior, with Immigration, Militia and Defence, Marine and Fisheries, Agriculture, External Affairs, Justice, Railways and Canals, Secretary of State, Trade and Commerce, Finance, Labour. Presented March 7, and April 9, 1923. Hon. Mr. Crerar.
Printed for distribution to Senators and Members.

122. Return to an Order of the House of the 21st February, 1923, for a copy of all papers, correspondence, letters, telegrams and documents of all kinds which passed between the Minister of Militia and Defence and the Dominion Coal Company of Nova Scotia, in connection with the sending of troops to Cape Breton during the strike of the employees of said company last August. Presented March 8, 1923. Mr. Irvine..... ....*Not printed.*

123. Copy of Rules of the Supreme Court of Canada, pursuant to Section 109 of the Supreme Court Act. Presented March 8, 1923.....*Presented in printed form.*

124. Return to an Order of the House of the 5th March, 1923, for a copy of all contracts entered into between Canadian Pacific Railway and the Transcontinental Commission or the Government, concerning the price and conditions for the use by Canadian National or Transcontinental Railway of Canadian Pacific Railway Terminals and station at the city of Quebec. Presented March 9, 1923. Mr. Parent..... ....*Not printed.*

Contents of Volume 6—*Continued*

125. Return to an Order of the House of the 5th March, 1923, for a copy of the agreements made between the Grand Trunk Railway or any company affiliated therewith, relating to terminal facilities or grade crossing eliminations in the cities of Chicago and Detroit in the United States of America, executed since the 31st day of December, 1922. Presented March 12, 1923. Sir Henry Drayton...*Not printed.*

126. Return to an address to His Excellency the Governor General of the 5th March, 1923, for a copy of Order in Council, P.C. 223, of February 7, 1922, appointing Mr. Duncan Marshall, of Olds, Alberta, a Commissioner. Presented March 12, 1923. Mr. Sutherland.....*Not printed.*

127. Return to an Address to His Excellency the Governor General of the 15th February, 1923, for a copy of all Orders in Council passed since January 1, 1921, removing appointments or affecting the removal of appointments or promotions from the Civil Service Commission. Presented March 13, 1923. Hon. Mr. Manion. *Not printed.*

127*a*. Copy of Report for the year 1922 of positions excluded under the provisions of Section 38B (2) from the operation of the Civil Service Act, 1918, as amended by Chap. 22, 11-12 Geo. V. Presented March 15, 1923.....*Not printed.*

127*b*. Return to an Order of the House of the 7th March, 1923, for a copy of all recommendations, correspondence, and reports passing between the Government and the Civil Service Commission referring to the exemptions made under Order in Council 1053, June 29, 1922. Presented June 25, 1923. Mr. Irvine...*Not printed.*

128. Return to an Order of the House of the 19th February, 1923, for a Return showing:—1. On what date and by what authority the Joint Peat Committee was appointed. 2. Names, addresses and previous occupations of the several members of the Committee. 3. Total amount of money expended by the Joint Peat Committee to date, including grand total, also total spent each year. 4. Whether the Committee owe any moneys for goods supplied, property purchased or services rendered. If so, how much, and for what. 5. Total amount of moneys expended by the Mines Branch, Department of Mines, upon experimental work at the Alfred Peat Bog, prior to the appointment of said Joint Peat Committee. 6. Estimated number of days expended by each and sundry members of the Mines Branch upon work to aid the operators of the said Joint Peat Committee, the value of which time has not been charged up to or paid for by the said Committee. 7. Whether it is the intention of the Government to continue the operations of the Joint Peat Committee. 8. What precautions have been taken by the Government to ensure the compilation of a full and complete technical report of the work attempted, the failures made, and the work accomplished. 9. Quantity of merchantable peat fuel manufactured and sold during 1922. 10. At what price this peat fuel was sold f.o.b. cars Alfred, and at what price the Joint Peat Committee permitted this peat fuel to be retailed in the city of Ottawa. 11. Where the offices of the Joint Peat Committee were located. 12. Names of salaried officers, their residential addresses, and amounts paid to each of them each year, for salaries and expenses. 13. Whether any of the salaried officials have applied for patents for improvements in the manufacture of peat fuel or in the machinery required in said manufacture. 14. If so, when and in whose name such applications for patent were made. Presented March 13, 1923. Mr. Irvine.....*Not printed.*

129. Return to an Order of the House of the 5th March, 1923, for a return showing the names of all the Commercial Agents or Trade Commissioners representing the Canadian Government abroad, showing their address, the date of their respective appointments, and their respective salaries. Presented March 14, 1923. Mr. Archambault.....*Not printed*

130. Return to an Order of the House of the 5th March, 1923, for a copy of all papers, correspondence, and writings of any kind, relating to the appointment of, and discontinuance from office of, Matt C. Beckett of Owen Sound, Ont. Presented March 14, 1923. Mr. Duncan.....*Not printed.*

131. Return to an Order of the House of the 26th February, 1923, for a copy of all communications, papers and documents relating to the dismissal of certain Medical Officers employed by Department of Soldiers' Civil Re-establishment, and the appointments to positions so vacated following the closing of Sydenham Hospital, Kingston. Presented March 14, 1923. Mr. Ross (Kingston).....*Not printed.*

Contents of Volume 6—*Continued*

132. Return to an Order of the House of the 19th February, 1923, for a copy of all correspondence, writings, documents, or other communications passing between the present Prime Minister or any one on his behalf and R. M. Rombough since May 1, 1921, on the subject of an investigation or proposed investigation into the Grain Trade. Presented March 15, 1923. Hon. Mr. Stevens.....*Not printed.*

133. Return to an Order of the House of the 26th February, 1923, for a copy of all letters, telegrams, correspondence and other documents exchanged between the Government or any department thereof and The Eastern Land Company, of Capreol, Ontario, relative to the purchase of land adjoining the Town of Capreol from The Canadian National Railways by said The Eastern Land Company. Presented March 15, 1923. Mr. Lapierre.....*Not printed.*

133a. Return to an Order of the House of the 28th March, 1923, for a copy of all papers, documents, telegrams, letters and other correspondence, exchanged between the Minister of Railways, or any official of his department, and the Land Commissioner of the Canadian National Railways, relating to the transfer of the Government lands to the Eastern Lands Development Company near Capreol and Polcyet. Presented April 9, 1923. Mr. Carruthers.....*Not printed.*

134. Return to an Order of the House of the 8th March, 1923, for a Return showing: 1. The number of hotels owned by the Canadian National Railways. 2. The cost of construction of each of these hotels. 3. The present value of equipment of each hotel. 4. Quantity of fire insurance carried on each hotel and equipment, and in what Companies. 5. Whether all these hotels are being operated by the Railways. 6. The revenue of each of these hotels in each of the last three fiscal years. 7. The expenditure in connection with each of these hotels in each of the last three fiscal years. 8. In regard to each of these hotels operated by the Railways, in each of the last three fiscal years, the net profit or loss in connection with the operation, including all charges such as insurance, interest on investment, and allowance for depreciation on building and equipment. Presented March 16, 1923. Mr. Coote.....*Not printed.*

135. Return to an Order of the House of the 12th February, 1923, for a copy of all papers, correspondence, letters, documents, and other writings relating to the disallowance of an Act of the Legislature of Nova Scotia changing the Rule of the Road, and for a copy of the opinion of the Department of Justice respecting the question of disallowing such legislation. Presented March 16, 1923. Sir Henry Drayton.....*Not printed.*

136. Return to an Address to His Excellency the Governor General, of the 12th March, 1923, for a copy of all correspondence exchanged between the Attorney General, Honourable Alex. Manson of British Columbia, and the Solicitor General, in reference to the proposed amendment to the Canada Temperance Act, together with copies of resolution of the British Columbia Legislature, with the accompanying Brief of the Attorney General of British Columbia, containing his references regarding the vote of the British Columbia Legislature. Presented March 16, 1923. Hon. Mr. Stevens.....*Printed for distribution to Senators and Members.*

137. Return to an Order of the House of the 19th February, 1923, for a copy of all correspondence, petitions, reports and memoranda relative to the dismissal of Mdlle. Adrienne Boulay, postmistress at Sayabec, and relative to the appointment of her successor. Presented March 16, 1923. Hon. Mr. Baxter.....*Not printed.*

138. Return to an Order of the House of the 21st February, 1923, for a Return showing: 1. The quantity of grain sold on the Winnipeg Sample Market in each of the last four years. 2. What amounts have been received by the Government from the proceeds of terminal elevator overages for the last year for which returns are available. 3. Whether the Government proposed, towards the close of 1922 shipping season, to waive the regulations forbidding foreign boats carrying Canadian grain between Canadian ports. 4. If so, whether any Canadian carrier or carriers made objections, and the names of such objectors. Presented March 19, 1923. Mr. Millar.....*Not printed.*

Contents of Volume 6—*Continued*

139. Return to an Address to His Excellency the Governor General of the 5th March, 1923, for a copy of all letters, telegrams and other documents, exchanged between the Government, or any department or official thereof, and the Government of New Brunswick, or any department or official thereof, with regard to the establishing of liquor export warehouses, or other export warehouses in the Province of New Brunswick, within the last two years. Presented March 20, 1923. Mr. Caldwell .....*Not printed.*

140. Return to an Address to His Excellency the Governor General of the 28th February, 1923, for a Return of all correspondence passing between the Prime Minister and the Honourable John Oliver, Premier of British Columbia, since January the 1st, 1923, having reference to claims of British Columbia on the Federal Government and other problems outstanding between the two Governments. Presented March, 1923. Hon. Mr. Stevens.....*Printed for sessional papers.*

141. Partial Return to an Address to His Excellency the Governor General of the 21st February, 1923, for a copy of all papers, letters, writings, correspondence, documents, etc., of any kind, passing between the Government of Canada and the Government of the United States relative to the Great Lakes Disarmament question. Presented March 20, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

142. Return to an Order of the Senate, dated February 27, 1923, for a Return showing: I. What was the net debt of Canada at each of the following dates respectively. (*a*) March 31st, 1921. (*b*) December 31st, 1921. (*c*) March 31st, 1922. (*d*) December 31st, 1922. II. In each of the periods of time following, namely: (*a*) Fiscal year 1920-21. (*b*) Fiscal year 1921-22. (*c*) April 1st until December 31st, 1922, what was the amount of revenue received by the Government from the following sources. 1. Customs Taxation. 2. Income Taxation. 3. War Profits Taxation. 4. Sales Tax. 5. Stamp Tax. 6. Other taxation specifying same respectively. III. In each of the periods mentioned in paragraph two, what was the total revenue received by the Government. (*a*) From direct taxation. (*b*) From indirect taxation. (*c*) From other sources. Presented March 20, 1923. Hon. Mr. Tanner .....*Not printed.*

143. Return to an Order of the House of the 12th February, 1923, for a copy of all memorandums, opinions and reports made by different Ministers of Justice or their deputies, from January 1, 1904 to date, on the question of disallowance of Provincial legislation and exercise of Provincial Acts and laying down the principles which justify the disallowance of the provincal acts. Presented March 21, 1923. Sir Henry Drayton.....*Not printed.*

144. Return to an Address to His Excellency the Governor General of the 12th February, 1923, for a copy of all memoranda, opinions, letters, reports and other documents, including reports to Council and Orders in Council, relating to any Nova Scotia Statute in 1922. Presented March 22, 1923. Mr. Hanson.....*Not printed.*

144a Return to a humble Address to His Excellency the Governor General, dated February 6, 1923, praying that His Excellency cause to be laid before the Senate a Return to include all correspondence, reports to council and orders in council relating to disallowance of Nova Scotia Statutes during 1922. Presented April 25, 1923. Hon. Mr. Tanner.....*Not printed.*

145. Return to an Order of the House of the 12th February, 1923, for a copy of all papers, correspondence, letters, documents, and other writings relating to the disallowance of a statute of the Legislature of Nova Scotia, being Chapter 177 of the Statutes enacted in the year 1921, and entitled "An Act to Vest Certain Lands in Victoria County in Jane E. MacNeil." Presented March 22, 1923. Sir Henry Drayton.....*Not printed.*

146. Return to an Order of the House of the 5th March, 1923, for a Return showing: 1. Number of Doctors employed by the Government Railways, whether the I.C.R., C.N.R. or the G.T.R. in the Province of Quebec. 2. Their names and addresses. 3. Salaries received. 4. On whose recommendation these appointments were made. 5. Whether they are allowed to take part in politics, either Provincial or Federal. Presented March 22, 1923. Mr. d'Anjou.....*Not printed.*

Contents of Volume 6—*Continued*

147. Return to an Order of the House of the 5th March, 1923, for a return showing the names, occupations, salaries, bonus included, and address of all inside and outside employees of the Department of Agriculture. Presented March 23, 1923. Mr. Bouchard.....*Not printed.*

148, 148*a*. Returns to an Order of the Senate, dated February 27, 1923, for a Return showing: (*a*) All correspondence, telegrams, petitions and documents dealing with the sale, or lease to the Imperial Oil Company, or other Company, or persons, of any part of the lands at Barrack Point, Sydney, N.S., with any Department of the Government and with the management of the Canadian National Railways, as well as any Orders in Council dealing with this matter. (*b*) The correspondence, with instructions to and the reports of any Engineers, or other officials of the Department of Railways, or of Public Works, or of the Canadian National Railways on this matter. (*c*) A plan showing the relation of the land in question to the city of Sydney, the Terminals of the Canadian National Railways and Sydney Harbour. Presented March 22 and April 17, 1923. Hon. Mr. McLennan.....*Not printed.*

149, 149*a*, 149*b*. Returns to an Order of the House of the 7th March, 1923: 1. For copies of all communications of whatsoever sort exchanged between the departments of the Government or any member of the Government with any person or firm respecting the Sydney coal strike of last summer. 2. For copies of all communications made to or received by any department of the Government from the railways in connection with the shop trades controversy of last summer, and concerning the Alberta coal strike in the autumn of 1922. 3. For copies of opinions of the Department of Justice given in relation to conduct of either employees or employers affected by any strike or threatened strike of workers in shipping or railway trades; and 4. Also for copies of all correspondence relating to or requisitions for troops in connection with the Sydney coal strike of last summer. Presented March 23, May 4 and 9, 1923. Sir Henry Drayton.....*Not printed.*

150. Authentic texts of the Draft Conventions and Recommendations adopted by the International Labour Conference (League of Nations) at its Third Session held in Geneva, Switzerland, October 25-November 19, 1921, together with a copy of Order in Council, P.C. 1358, dated June 27, 1922, concerning the same. Presented March 23, 1923.....*Not printed.*

150*a*. Copy of a reprint of an article in the Labour Gazette of December, 1922, containing a report of the Fourth Session of the International Labour Conference held at Geneva, Switzerland, from October 18 to November 3, 1922. Presented March 23, 1923.....*Not printed*

150*b*. Copy of the Agenda of the 18th Session of the Governing Body League of Nations International Labour Office meeting April 10, 1923, at Geneva; together with correspondence appointing a Canadian delegate thereto. Presented March 26, 1923. *Not printed.*

150*c*. Authentic text of a Recommendation concerning a Communication to the International Labour Office of Statistical and other Information regarding Emigration, Immigration and the Repatriation and Transit of Emigrants adopted by the International Labour Congress at its Fourth Session in Geneva, October 18 to November 3, 1922. Presented March 28, 1923.
Printed for distribution to Senators and Members.

151. Return to an Order of the House of the 8th March, 1923, for a Return showing: 1. The amount of fresh American bacon sides, shipped into Canada, in bond, for curing in Canadian plants, and shipped out as Canadian cured American, during the years 1919, 1920, 1921 and 1922. 2. The percentage of this amount exported to the British markets during these years. Presented March 26, 1923. Mr. Kennedy (Edmonton).....*Not printed.*

152. Return to an Address to His Excellency the Governor General of the 19th March, 1923, for a copy of all correspondence between the Federal Department of Agriculture, or any official of the Department of Agriculture, and the town of Moncton, New Brunswick, or any official of the town of Moncton, or any official of the Department of Health of the Province of New Brunswick, regarding the testing of Dairy cattle, under the Animals Contagious Diseases Act, in the vicinity of Moncton, New Brunswick. Presented March 26, 1923. Mr. Caldwell...*Not printed.*

Contents of Volume 6—*Continued*

153. Return to an Address to His Excellency the Governor General of the 26th February, 1923, for a return of all correspondence, letters, telegrams, documents, reports, etc., between the Minister of Public Works or any official of his Department, or any other Minister or official of the Government and the Minister of Public Works in the Province of B.C. or any official, or other Minister or official of the Provincial Government of B.C., regarding the problem of protection for Nicomen Island against high water flooding by the Fraser River. Presented March 26, 1923. Hon. Mr. Stevens.....*Not printed.*

154. Report on First Part of Investigation (matters referred to in G.W.V.A. telegram) by the Royal Commission on Pensions and Re-establishment. Presented March 28, 1923.....*Printed for sessional papers and distribution to Senators and Members.*

154*a*. Report of the Royal Commission on Pensions and Re-establishment—First Interim Report on Second Part of Investigation (certain questions relating to pensions, medical treatment and re-establishment needs of Canadian ex-service men and their dependents). Presented May 21, 1923.
Printed for sessional papers and distribution to Senators and Members.

155. Return to an Order of the House of the 12th March, 1923, for a Return showing: 1. The total area in acres of all lands within what is known as the pre-emption area as defined by Dominion Lands Act, 1908. 2. The number of acres of such lands under the administration of the Dominion Government by virtue of: (*a*) Unproved pre-emption; (*b*) Unproved purchased homesteads; (*c*) Forest Reserves and Parks; (*d*) Grazing Lease; (*e*) School lands. Presented March 28, 1923. Mr. McTaggart.....*Not printed.*

156. Return to an Order of the House of the 12th February, 1923, for a Return showing: 1. The record of the proceedings of a sub-committee of the Privy Council appointed under P.C. 1566, May 12, 1921, to whom was referred the matter of arriving at a scale of fees charged by the Government for licenses, permits, leases, etc. 2. The reports and recommendations of all department officers made to Council or to any Minister concerning said matter. 3. The names and offices held by all departmental officers who inquired into and reported on said subject. 4. The report recommending the scale of fees charged by the Government for recording transfers and other documents under the regulations governing quartz mining claims in Yukon Territory. Presented April 9, 1923. Mr. Black (Yukon).....*Not printed.*

157. Return to an Order of the House of the 19th February, 1923, for a Return showing: 1. What expenses, payments or disbursements of any kind have been made since April 1, 1922, out of other moneys than those included in the amounts voted by Parliament for the Department of Militia and Defence in respect of items or charges paid in the fiscal year 1920-21 out of moneys voted for the Department of Militia and Defence. 2. Under what authority such moneys were so paid from other votes, and why the change was made. 3. Whether objections were offered by the Department of the Auditor General to payments being so made or to other attempts to make similar payments. If so, in what cases. Presented April 9, 1923. Mr. Boys.....*Not printed.*

158. Return to an Order of the House of the 19th March, 1923, for a Return showing: 1. Whether the Government owns a dry-dock at Levis. 2. If so, when purchased. 3. From whom said dry-dock was purchased. 4. The price the Government paid for same. 5. Date of purchase. 6. Number of boats repaired each year in said dry-dock. 7. The tonnage of each boat repaired. 8. Extent of repairs. 9. Where said dry-dock is located. 10. To whom the adjoining properties belong. Presented April 9, 1923. Mr. Archambault.....*Not printed.*

159. Return to an Order of the House of the 7th March, 1923, for a copy of all papers, correspondence, memoranda, reports and other documents relating to the application for the opening of a Post Office in North Oakville in 1921 and also relating to the Order countermanding the opening of said Post Office. Presented April 9, 1923. Mr. Anderson.....*Not printed.*

160. Return to an Order of the House of the 28th February, 1923, for a Return showing: 1. The total sum now charged against the railways now comprised in the National Railways by way of cost of construction, cost of equipment, and deficits. 2. What portion of said sum is chargeable to capital expenditure and deficits respectively. 3. What amounts regarding No. 2 are respectively chargeable to the railways

formerly known as the Canadian Northern, the Grand Trunk Pacific, the National Transcontinental, the Intercolonial and the Grand Trunk. 4. What the respective fixed charges are against the former Canadian Northern Railway, the Grand Trunk Pacific, the National Transcontinental and the Grand Trunk Railway. 5. Whether there are any annual fixed charges against the Intercolonial Railway and the Prince Edward Island Railway. 6. If so, the amounts. 7. The total annual fixed charges on account of securities held against the National Railways by private investors and excluding all securities and advances made by the Government of Canada. 8. The amount of the annual fixed charges of the various railways in the National system on account of securities and loans made by the Government of Canada. Presented April 9, 1923. Mr. Euler.

Printed for distribution to Senators and Members.

161. Return to an Order of the House of the 5th March, 1923, for a copy of all correspondence, papers, writings, and other documents, relating to the cancellation of the contract of Peter Thibeau for the carrying of mail from Thibeauville to Sporting Mountain Station, Nova Scotia. Presented April 10, 1923. Mr. Hanson.

Not printed.

162. Return to an Order of the House of the 12th March, 1923, for a Return showing: 1. The number of quarter sections of schools lands within pre-emption area as defined by Dominion Lands Act, 1908, sold up to December 31, 1922. 2. The total revenue derived therefrom up to December 31, 1922. 3. The amount remaining unpaid upon such lands at December 31, 1922. 4. The number of quarter sections of such lands that have been surrendered to the Government. Presented April 10, 1923. Mr. McTaggart..... .....*Not printed.*

163. Return to an Address to His Excellency the Governor General of the 19th February, 1923, for a Return showing all correspondence, letters, documents, petitions, etc., passed between the Government or any member of the Government, or officials of the Department and persons in Vancouver, B.C., relating to the retirement of certain members of the Vancouver Harbour Board and the appointment of successors; also copies of the Orders in Council appointing members of the Vancouver Harbour Board since its inception; also Orders in Council that have passed since January 1, 1922, authorizing the expenditure of moneys by the Harbour Commissioners in harbour improvements. Presented April 11, 1923. Hon. Mr. Stevens..... ....*Not printed.*

164. Return to an Order of the Senate, dated March 8, 1923, for a Return giving the following information: The value of imports into Canada in the currency of the country of origin as well as in Canadian currency, showing importations from each country separately with the amount of duties collected on such goods from each such country and average rate of duty from each such country separately between July 1, 1922, and January 1, 1923, on following articles:—

Value of Imports, as Specified, Entered for Consumption in Canada, and Customs Duty Collected Thereon, During the Calendar Year, 1922.

	Item	Value	Customs Duty
		$	$ cts.
(*a*)	Agricultural machinery	7,732,215	660,464 16
(*b*)	Meats	9,286,552	1,815,609 42
(*c*)	Animal grease, oils or fats	2,977,100	311,817 93
(*d*)	Milk and milk products	2,325,897	267,184 52
(*e*)	Cattle, calf and sheep skins, green or salted	6,747,824	-
(*f*)	Wool	3,883,433	651 72
(*g*)	Eggs	2,476,906	244,216 22
(*h*)	Apples, green	914,862	153,525 60
(*i*)	Potatoes	450,909	69,487 60
(*j*)	Fish and fishery products	2,800,980	315,509 79

Contents of Volume 6—*Continued*

IMPORTS ENTERED FOR CONSUMPTION CALENDAR YEAR 1922

Items	Unit	Quantity	Value	Duty
			$	$ cts
(a) *Agricultural Machinery or Farm Equipment—*				
Binding attachments	$	.....	13,713	1,379 70
Steel bowls for cream separators	$	.....	9,412	Free
Cream separators	No.	5,484	216,134	Free
Cultivators and weeders and parts	$	.....	46,228	6,584 72
Traction ditching machines not more than $3,000 value and parts	No.	11	30,286	Free
Drills, seed	No.	811	32,819	4,806 58
Portable engines for farm purposes	No.	1	506	88 56
Repairs for traction engines	$	.....	734,961	Free
Traction engines not more than $1,400 for farm purposes	No.	4,592	2,411,653	Free
Traction engines, n.o.p., for farm purposes and repairs	No.	88	312,617	54,689 33
Fanning mills	No.	297	9,487	1,610 30
Fodder or feed cutters	No.	885	67,621	10,342 25
Forks, pronged	No.	4,344	3,276	675 45
Grain crushers	No.	85	4,658	801 05
Harrows and parts	$	.....	71,508	9,904 62
Harvesters, self binding	No.	1,582	253,694	25,450 96
Hay loaders	No.	3	870	130 50
Hay presses	No.	148	41,347	11,370 49
Hay tedders	No.	1	29	4 35
Hoes	No.	3,584	1,755	378 37
Horse rakes	No.	180	5,585	737 39
Knives, hay or straw	No.	2,115	1,738	261 90
Knives, edging	No.	197	208	42 91
Mowing machines	No.	409	23,188	2,447 84
Manure spreaders	No.	60	5,567	766 86
Ploughs, and parts	$	.....	571,680	93,265 50
Post hole diggers	No.	1,111	1,424	250 65
Potato diggers	No.	928	69,664	10,904 25
Rakes, n.o.p.	No.	3,638	2,112	464 67
Reapers	No.	30	2,220	222 20
Rollers, farm, road or field	No.	26	8,137	1,572 75
Scythes	Doz.	530	6,200	1,286 92
Sickles, or reaping hooks	Doz.	336	834	149 87
Spades and shovels	Doz.	2,852	15,646	4,248 85
Threshing machine separators	No.	1,922	1,631,115	245,750 65
Threshing machine separtor parts	$	.....	621,704	97,259 62
Windmills and parts	$	.....	34,046	5,958 46
Parts of agricultural implements	$	.....	266,943	31,486 80
All other agricultural implements	$	.....	192,834	33,759 44
Milk machines and attachments, centrifugal machines for testing butter, fat, milk, etc. (From May 24, 1922)	$	.....	6,515	977 25
Grading machines, fruit or vegetable. (From May 24, 1922)	No.	30	2,881	432 15
Total agricultural machinery	.....	.....	7,732,215	660,464 16
(b) *Meats—*				
Beef, fresh	Lbs.	110,566	32,250	3,316 98
Beef, pickled, in barrels	Lbs.	858,900	53,465	17,176 00
Mutton and lamb, fresh	Lbs.	2,061,025	344,014	58,160 15
Pork, fresh	Lbs.	34,708,132	5,321,788	1,041,243 96
Bacons and hams, etc., cured	Lbs.	4,544,009	672,349	90,876 37
Pork, barrelled in brine	Lbs.	11,560,950	1,226,744	231,217 00
Pork, dry salted	Lbs.	1,536,363	196,348	30,727 26
Poultry and game, n.o.p.	$	.....	67,449	13,297 31
Sausage	Lbs.	349,966	108,081	6,999 32
Other meats, fresh	Lbs.	275,418	29,684	8,258 39
Other meats, salted	Lbs.	88,785	18,619	1,775 70
Dried or smoked meats and meats preserved, n.o.p.	Lbs.	140,563	32,822	2,811 26
Canned meats	Lbs.	1,569,812	282,481	71,420 65
Extracts of meats	$	.....	110,694	21,586 58
Soups	$	.....	789,764	216,742 49
Total meats	.....	.....	9,286,552	1,815,609 42

Contents of Volume 6—*Continued*

IMPORTS ENTERED FOR CONSUMPTION CALENDAR YEAR 1922—*Continued*

Items	Unit	Quantity	Value	Duty
			$	$ cts.
(c) *Animal Oils and Fats*—				
Grease rough for manufacture of soap and oil	Lbs.	15,973,504	1,077,938	Free
Grease and degras for stuffing leather	Lbs.	1,515,844	70,227	Free
Lard	Lbs.	10,232,095	1,105,854	204,641 90
Lard compound, animal stearine, etc	Lbs.	2,739,658	268,960	53,732 41
Lard oil	Gal.	20,633	19,329	4,726 55
Oleomargarine	Lbs.	1,032,405	172,738	Free
Oleo oil	Gal.	8,833	7,827	1,369 72
Neat's-foot oil	Gal.	6,232	7,005	1,751 25
Other animal oil, n.o.p	Gal.	56,509	42,373	7,397 20
Tallow	Lbs.	876,458	65,537	13,107 40
Candles, n.o.p	Lbs.	458,895	80,309	19,809 35
Beeswax	Lbs.	221,352	59,003	5,282 15
Total animal oils, fats, etc			2,977,100	311,817 93
(d) *Milk and Milk Products*—				
Milk and cream, fresh	$		33,841	5,922 59
Milk, condensed	Lbs.	232,285	51,823	7,635 72
Butter	Lbs.	6,396,836	1,912,519	216,399 31
Casein	Lbs.	535,703	61,185	16,826 02
Cheese	Lbs.	686,754	266,529	20,400 88
Total milk and milk products			2,325,897	267,184 52
(e) *Cattle, Calf and Sheep Skins*—				
Calf Skins, raw	Lbs.	5,466,304	1,289,548	Free
Cattle skins, raw	Lbs.	32,847,294	5,114,662	Free
Sheep skins, raw	Lbs.	2,764,390	343,614	Free
Total calf, cattle and sheep skins			6,747,824	
(f) *Wool*—				
Wool, etc., not further prepared than washed, n.o.p	Lbs.	15,885,150	3,877,036	Free
Leicester, Cotswold, Lincolnshire, South Down combing wools, or wools known as lustre wools and other like combing wools such as are grown in Canada	Lbs.	21,724	6,397	651 72
Total wool			3,883,433	651 72
(g) *Eggs*	Doz.	8,140,547	2,476,906	244,216 22
(h) *Apples, green*	Brl.	170,584	914,862	153,525 60
(i) *Potatoes, n.o.p*	Bush.	347,453	450,909	69,487 60
(j) *Fish and Fishery Products*—				
Cod, haddock and pollock, fresh	Lbs.	1,186,761	44,026	6,757 11
Cod, haddock and pollock, pickled	Lbs.	261,114	10,005	96 00
Cod, haddock and pollock, smoked	Lbs.	590	44	2 15
Cod, haddock and pollock, dried	Lbs.	7,563,857	449,538	703 37
Halibut, fresh	Lbs.	2,746,009	220,638	24,517 41
Herring, fresh	Lbs.	237,942	6,038	259 14
Herring, canned	Lbs.	326,015	49,865	13,225 99
Herring, smoked	Lbs.	1,360	257	8 61
Herring, pickled	Lbs.	10,167,744	297,100	8,201 42
Mackerel, fresh	Lbs.	52,254	5,154	522 54
Sardines, anchovies, etc., in tins	Boxes	4,021,992	384,993	84,648 38
Salmon, fresh	Lbs.	2,792,977	179,601	25,226 00
Salmon, canned	Lbs.	518,463	28,838	19,921 18
Salmon, smoked	Lbs.	21,285	6,489	210 45
Salmon, pickled	Lbs.	455,777	27,984	37 52
Squid	$		24,134	Free
Lobsters, fresh	$		4,220	562 50
Lobsters, canned	Lbs.	59,231	40,239	113 40
Oysters, seed and breeding	$		4,240	Free
Oysters, fresh, in shell	Brls.	2,499	20,197	5,059 25
Oysters, shelled, in bulk	Gals.	133,390	272,065	13,339 00

Contents of Volume 6—*Continued*

IMPORTS ENTERED FOR CONSUMPTION CALENDAR YEAR 1922—*Concluded*

Items	Unit	Quantity	Value	Duty
			$	$ cts.
(j) *Fish and Fishery Products*—Con.				
Oysters, canned	Cans	150,345	27,225	4,561 63
Oysters, prepared, n.o.p.	Lbs.	13,008	7,941	2,382 30
Bait, fish, fresh	Lbs.	1,800	24	18 00
Fish, smoked or boneless	Lbs.	25,274	4,380	222 96
Fish, preserved in oil, n.o.p.	$	.....	43,040	14,705 00
Fish, all other, fresh	Lbs.	1,128,560	96,959	10,892 28
Fish, all other, pickled	Lbs.	786,245	64,593	1,645 83
Fish, dried, n.o.p.	Lbs.	336,610	78,862	3,069 87
Fish, preserved, n.o.p.	$	.....	139,848	38,716 41
Live fish and fish eggs for propagating purposes	$	.....	3,299	Free
Fish oil, cod liver	Gals.	113,938	67,984	2,906 24
Fish oil, other, n.o.p.	Gals.	28,357	16,362	3,616 77
Seal oil	Gals.	13,010	8,133	Free
Whale oil	Gals.	13,914	9,288	2,041 27
Ambergris	$	.....	251	Free
Sponges, marine	$	.....	82,436	13,501 41
Fish offal or refuse	$	.....	7,961	Free
Other articles, fisheries	$	.....	56,729	13,828 40
Total fish and products	.....	.....	2,800,980	315,509 79

Presented April 11, 1923. Hon. Mr. Lynch-Staunton.....*Not printed.*

165. Return to an Order of the House of the 26th June, 1922, for a copy of all correspondence from and to any member of the Government, and Government department or official thereof, or other persons, with reference to the appointment and dismissal in the years 1921 and 1922 of the crew of the Government cutter *Hudson*. Presented April 13, 1923. Hon. Mr. Baxter.....*Not printed.*

166. Return to an Order of the House of the 5th March, 1923, for a copy of all correspondence, papers, writings, documents, telegrams, etc., connected with, leading to, or in any way relating to the withdrawal of professional work for the Inland Revenue Department, formerly performed by Charles Blake, barrister, at Brandon, and a returned soldier, and the turning of same over to Mr. Clement, of that city. Presented April 13, 1923. Mr. Black (Yukon).....*Not printed.*

167. Return to an Order of the House of the 5th March, 1923, for a copy of all correspondence, papers, writings, documents, telegrams, etc., connected with, leading to, or in any way relating to the withdrawal of professional work for the Inland Revenue Department, formerly performed by Mr. F. G. Thompson, barrister, at Winnipeg. Presented April 13, 1923. Mr. Black (Yukon).....*Not printed.*

168. Return to an Order of the House of the 5th March, 1923, for a copy of all correspondence, papers, writings, documents, telegrams, etc., connected with, leading to, or in any way relating to the withdrawal of professional work for the Inland Revenue Department, formerly performed by Mr. H. P. Blackwood, barrister, at Winnipeg. Presented April 13, 1923. Mr. Black (Yukon).....*Not printed.*

169. Return to an Order of the House of the 19th March, 1923, for a copy of all papers, correspondence, letters, documents, telegrams and other writings which have passed between the Government of the day, or any Minister thereof, and any person or persons connected with the sale to the Government of Lots 31 and 32, Block S, in the town of Vermilion, Alberta. Presented April 13, 1923. Mr. Spencer .....*Not printed.*

170. Return to an Order of the House of the 26th February, 1923, for a Return showing: 1. The total value of the assets of the Canadian Pacific Railway. 2. The total amount of issued capital stock of the Canadian Pacific Railway. 3. The bonded indebtedness of the said company. 4. All the other obligations of the said company excepting current accounts. 5. The total cash reserves of the said company as at the date of the 31st December, 1922, including loans of money made by the

Contents of Volume 6—*Continued*

said company. 6. Whether the Canadian Pacific Railway has any other reserves than cash. If so, what they are, and what their total value is. 7. The value of the assets of the said railway created out of earnings or created from the receipts secured from the sale or other disposal of the company's assets. 8. Whether the Dominion Government extended any assistance to any railway which was acquired subsequent to the granting of such assistance, by the C.P.R. 9. If so, the names of the railway or railways, and the extent of the assistance given in the following detail: (*a*) grant of land in acreage; (*b*) amount of money; (*c*) other assistance and its value. 10. Whether the provinces of Canada extended any assistance to the C.P.R. 11. If so, the nature and extent of the assistance divided as follows: (*a*) name of railway; (*b*) name of province; (*c*) the amount of land granted in acreage; (*d*) the amount of money; (*e*) the nature and extent and value of all other assistance; (*f*) bond guarantees. 12. Whether any of the provinces of the Dominion extended any aid or assistance to the C.P.R. or to any company subsequently acquired by the C.P.R. 13. If so, the nature and extent of the said assistance given them in the following detail: (*a*) name of company; (*b*) name of province; (*c*) extent of land in acreage and in value; (*d*) rights the grant of land contained; (*e*) amount of money; (*f*) the nature and extent of all other assistance; (*g*) bond guarantees amount. Presented April 13, 1923. Mr. Lucas...*Not printed.*

170*a*. Return to an Order of the House of the 26th February, 1923, for a Return showing: 1. Whether the C.P.R. between Kamloops and Port Moody was constructed by the Dominion Government and turned over to the C.P.R. without cost to the said company. 2. If not, what portion of the C.P.R. in British Columbia was constructed by the Dominion Government. 3. The actual cost of the C.P.R. lines built in British Columbia by the Dominion Government, and turned over to the C.P.R. 4. Whether the Dominion Government built or paid for the construction of any portion of the C.P.R. If so, the portions so constructed or paid for and their value. 5. The total value of the lines turned over to the C.P.R. either fully or partially constructed and paid for by the Dominion Government. 6. The total amount of cash given to the C.P.R. Company to aid the construction of the company's railway. 7. The total number of acres of land given to the C.P.R. to aid in the construction of the company's railway. 8. The total receipts received by the C.P.R. Co. from the sale or disposal of said lands to date. 9. The number of acres of the said lands remaining in the C.P.R. to-day, or its subsidiary companies, and the value thereof per acre and total. 10. The amounts of dividends paid by the C.P.R. Co. during the following years: 1914, 1915, 1916, 1917, 1918, 1919, 1920 and 1921 in per cents and annual totals. Presented April 24, 1923. Mr. Kellner.....*Not printed.*

171. Return to an Order of the House of the 14th March, 1923, for a Return showing: 1. The quantity of grain grown on the Indian Reserves in the three prairie provinces during the last five years. 2. What proportion of this was grown by individual Indians. 3. What proportion by White Lessees. 4. What proportion by the Greater Production operations. 5. The quantity of grain grown on these same reserves during the five years previous to this period. 6. What area has been summer-fallowed and broken by Indians during the last five years. 7. What area during the previous five years. 8. Amount of rentals collected during the last five years. 9. Amount during the previous five years. Presented April 13, 1923. Mr. Evans .....*Not printed.*

172. Return to an Order of the House of the 19th March, 1923, for a copy of all correspondence, papers, writings, petitions, telegrams and other documents passing between the Department of Indian Affairs, the Minister and Officers of this Department, and the Six Nations Indian Reserve, its Council or members or residents thereof, since 1st January, 1922, having to do with the relations of such Reserve to the Government of Canada and to the complaints of such Council regarding the Department of Indian Affairs. Presented April 13, 1923. Mr. Senn
Not printed.

173. Copy of a letter from the Secretary of the Vancouver Board of Trade to the Prime Minister of Canada respecting the question of alleged discriminatory freight rates against the province of British Columbia. Presented April 16, 1923...*Not printed.*

174. Copy of a Report of W. A. Dryden on his mission to South America for the purpose of looking into live stock conditions there, and the possibilities of a market for Canadian breeding stock. Presented April 18, 1923.....*Not printed.*

Contents of Volume 6—*Continued*

175. Return to an Order of the House of the 26th March, 1923, for a copy of all papers, correspondence, letters, telegrams, petitions, requests and other documents, exchanged between the Post Office Department and any persons, from the year 1911 to date in regard to the resignation of Mrs. J. Nolin, Postmistress of St. David, County of Levis. Presented April 18, 1923. Mr. Bourassa....*Not printed.*

176. Return to an Order of the House of the 18th April, 1923, for a Return showing:— 1. The amount of grain of each kind shipped from the Port of Montreal in each of the years 1920, 1921 and 1922. 2. How much of this grain was Canadian grown and how much American. 3. How much of the 1922 Canadian grain crop was shipped from Montreal in 1922. 4. How much grain was handled by the Grand Trunk elevator and how much by the elevators owned by the Montreal Harbour Commission in the years 1920, 1921 and 1922. 5. Whether the Montreal Harbour Commission recently purchased from the Canadian National Railway System the said Grand Trunk elevator. If so, the price paid for same. 6. The storage capacity of this elevator. 7 The storage capacity of the other elevators owned by the Harbour Commission and the total cost of these elevators. Presented April 18, 1923. Mr. Coote.....*Not printed.*

177. Copy of correspondence and agenda respecting the Imperial Economic Conference and the Imperial Conference, to be held in 1923. Presented April 19, 1923. *Not printed.*

178. Return to an Order of the House of the 1st March, 1923, for a Return showing:— 1. The total cost of collecting the Income Tax during the years 1918, 1919, 1920, 1921 and 1922. 2. The total amount of rental paid for offices used in connection with the said work during the above-mentioned years. 3. What the total amount of interest would amount to on money invested in buildings owned by the Government and used in connection with the collection of said tax during the above stated years. 4. The total amount of salaries paid in connection with the said collections during the years mentioned. 5. The total amount of all other expenses incidental to the collecting of Income Tax during the said years. 6. The total amount of Income Tax collected during the years 1918, 1919, 1920, 1921 and 1922. Presented April 23, 1923. Mr. Black (Huron).....*Not printed.*

179. Return to an Order of the House of the 5th March, 1923, for a Return showing:— 1. Total cost of collecting the Customs and Excise Taxes for the years 1918, 1919, 1920, 1921 and 1922. 2. Total amount of rental paid for offices used in connection with the said work during the above mentioned years. 3. Total amount of interest money invested in buildings owned by the Government and used in connection with the collection of said taxes during the above stated years. 4. Total amount of salaries paid in connection with the said collections during the years mentioned. 5. Total amount of all other expenses incidental to the collecting of Customs and Excise taxes during the said years. 6. Total amount of Customs and Excise Taxes collected during the years 1918, 1919, 1920, 1921 and 1922. Presented April 23, 1923. Mr. Black (Huron).....*Not printed.*

180. Return to an Order of the House of the 12th February, 1923, for a return giving a list of all appointments made or nominations to appointments made by the Civil Service Commission since January 1, 1922, with the names of the persons appointed or nominated in all cases where such appointments or nominations have not been followed by the appointee or person nominated actually taking the position, also showing in each case who is occupying the position which the appointee of the Commission is not occupying, and also showing the instances where the appointee of the Commission was a returned soldier. Presented April 23, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

181. Return to an Order of the House of the 26th March, 1923, for a copy of all letters, papers, reports and other documents, regarding the dismissal of U. Belanger, Station Agent at Padoue, County of Matane, in 1922. Presented April 23, 1923. Mr. Pelletier.....*Not printed.*

182. Return to an Order of the House of the 26th March, 1923, for a copy of all letters, papers, reports and other documents, regarding the dismissal of A. C. Belanger, Night Station Agent at St. Moise, Matane County, in 1922. Presented April 23, 1923. Mr. Pelletier.....*Not printed.*

Contents of Volume 6—*Continued*

183. Return to an Order of the Senate, dated March 2, 1923, for a Return showing:—1. What was the total wheat crop of the world for 1921. 2. What amount of wheat is stored at Port Arthur and Fort William during the winter of 1922-23. 3. What amount of wheat was exported from Canada to the Orient during the years 1911, 1916, 1918, 1921 and if possible 1922. 4. How many hundredweight of flour and of what grades were exported to the Orient from Canada during the said years. 5. How many bushels of wheat and hundredweight of flour were exported from Canada to Europe, giving if possible the several countries of Europe to which it was exported, during the years 1911, 1916, 1918 and 1921. Presented April 25, 1923. Hon. Mr. Schaffner.....*Not printed.*

184. Return to an Order of the House of the 7th March, 1923, for a Return showing:—1. Mileage of railways owned by the Dominion Government in 1896. 2. Cost of same to the country at that date. 3. Total mileage of railways owned by the Dominion Government in 1911. 4. Cost of same to the country. 5. Total mileage of railways owned by the Dominion Government on January 1, 1922. 6. Net cost to the country on January 1, 1922, of the railways taken over by the Government from McKenzie & Mann. 7 Total mileage in Canada of the railways taken over by the Government from the Grand Trunk Railway. 8. Total mileage in the United States. 9. Total cost to Canada of the Grand Trunk Railway both in Canada and the United States, on the 1st of January, 1922. 10. Total cost to Canada of all railways owned by the Dominion Government on January 1, 1922. Presented April 26, 1923. Mr. Tobin.....*Not printed.*

185. Return to an Order of the House of the 22nd February, 1923, for a Return showing: 1. The names of the Postmasters, in the County of Levis, that were dismissed between July 1, 1911, and January 1, 1922. 2. The names of those dismissed after inquiry. 3. The reasons for their dismissal. 4. The names of those dismissed without an inquiry. 5. The reasons for the dismissal of the latter. 6. The names of those who have been reinstated. Presented April 26, 1923. Mr. Bourassa. *Not printed.*

186. Return to an Address to His Excellency the Governor General of the 26th March, 1923, for a copy of all papers, writings, telegrams, Orders in Council, affidavits or documents of any kind relating to the dismissal of Mr. D. W. Morrison from the position of Postmaster at St. Peters, Nova Scotia, including all communications to and from Mr. W. E. McLellan, Acting District Superintendent of the Post Office Department for the Province of Nova Scotia. Presented April 26, 1923. Mr. Hanson..... *Not printed.*

187, 187*a*. Returns to an Address to His Excellency the Governor General of the 19th March, 1923, for a copy of all papers, correspondence, letters, documents, telegrams, and other writings which have passed between the present Government, or any Minister or official thereof, and the Government of the Province of British Columbia or any Minister or official thereof, on the subject of oriental immigration, or in any way affecting or dealing with the rights or privileges of orientals in Canada. Presented April 26, and June 28, 1923. Mr. McQuarrie.....*Not printed.*

188, 188*a*. Returns to an Address to His Excellency the Governor General of the 19th March, 1923, for a return showing:—1. All statutes, orders in council, regulations and other enactments and provisions of the Province of British Columbia since the entry of that Province into Confederation, dealing with or affecting oriental immigration, or the rights or privileges of orientals, which have been disallowed; giving dates of disallowance and the reasons therefor in every case respectively. 2. A copy of all papers, correspondence, letters, documents, telegrams and other writings which have passed between the present Government or any Minister or official thereof, and the Government of the Province of British Columbia, or any Minister or official thereof, relative to the disallowance of any Provincial enactment affecting orientals. 3. A copy of all papers, correspondence, letters, telegrams or other writings which have passed between the Secretary of State, or any of his officials and any of the County Court Judges in Vancouver on the subject of naturalization of oriental aliens. 4. A copy of all orders in council or other regulations passed during, or since January 1, 1917, affecting oriental immigration. 5. Details as to oriental immigration since January 1, 1917, classified as to age, sex, nationality and occupation. Presented April 26, and June 28, 1923. Mr. McQuarrie.....*Not printed.*

Contents of Volume 6—*Continued*

189. Fourth Annual Report of the Board of Directors of Canadian Government Merchant Marine, Limited, for the year ended December 31, 1922. Presented April 30, 1923..... .....*Presented in printed form.*

190. Return to an Order of the House of April 23, 1923, for a copy of all letters, correspondence, telegrams, and other documents, since January last, passing between the Minister of Labour or any officer of his department and the Civic Employees Union of Prince Rupert, or any officer or official of the Municipal Council of Prince Rupert, or other persons, having reference to a request for a Conciliation Board. Presented April 30, 1923. Hon. Mr. Stevens.....*Not printed.*

191. Copy of Order in Council, P.C. 713, dated April 21, 1923, appointing F. T. Congdon, K.C., of Ottawa, Commissioner to inquire into and report upon all circumstances incidental to or connected with any gratuities or payments made by the Grand Trunk Railway Company's directors by way of bonus or retiring allowances to any directors of the company. Presented April 30, 1923.....*Not printed.*

191*a*. Return to an Order of the House of the 30th April, 1923, for a copy of all letters, correspondence and documents passing between Justice Department or any officer thereof and any other Minister of the Crown, having reference to a Commission presided over by the late Augustus Power, K.C., investigating charges of the alleged maladministration of F. C. Congdon, K.C., during his term as public administrator of the Yukon territory, and copy of the report of the said Power Commission. Presented June 14, 1923. Mr. Hanson.....*Not printed.*

192. Return to an Order of the House of the 22nd March, 1923, for a Return showing: 1. Number of persons employed in a temporary capacity by the various departments of the Government on the 31st December, 1921. 2. Number of persons employed in a temporary capacity by the various departments of the Government on the 31st December, 1922. Presented May 1, 1923. Mr. Archambault.....*Not printed.*

193. Return to an Order of the House of the 26th March, 1923, for a copy of all letters, papers, telegrams, correspondence and other documents, in the possession of the Government, exchanged between Mr. Walter Fisher, Chief Fishery Inspector, Eastern Division, Halifax, Nova Scotia; T. W. Crocker, Fishery Inspector, New Castle, New Brunswick, and Joseph Le Blanc of Richibucto Village, and the Department of Marine and Fisheries, in reference to the seizure and confiscation of the Joseph Le Blanc fishing boat, so called, for illegal fishing, in the year 1922, at Richibucto Cape, New Brunswick. Also a copy of the order given by the Minister of Marine and Fisheries for the release of said confiscated boat to the said Joseph Le Blanc. Presented May 1, 1923. Mr. Leger.....*Not printed.*

194. Return to an Order of the House of the 26th April, 1923, for a Return showing: 1. The total number of employees of the Board of Grain Commissioners at Fort William in the year 1922, and the total of the salaries paid during the year. 2. The number of persons employed in the Weighing Department in each month, and the amount of wages paid to them in each month. 3. The amount of grain weighed by this department in each month. 4. The number of persons employed in the Inspection Department in each month, and the amount of wages paid to them in each month. 5. The amount of grain inspected by this department in each month. Presented May 2, 1923. Mr. Coote.
Printed for distribution to Senators and Members.

195. Return to an Order of the House of the 26th February, 1923, for a Return showing: 1. The ruling grades on the Canadian National Railways against east and west bound traffic between the following points: (*a*) Vancouver and the eastern boundary of British Columbia; (*b*) the easterly boundary of British Columbia to Fort William; (*c*) Fort William to North Bay; (*d*) North Bay to Toronto; (*e*) North Bay to Montreal. 2. The ruling grades on the Canadian Pacific Railway between: (*a*) Vancouver and Revelstoke; (*b*) Revelstoke and Canmore; (*c*) Canmore and Fort William; (*d*) Fort William and Montreal; (*e*) Montreal and West St. John. 3. Whether the section of the Canadian National Railway through the Fraser River Canyon, viz: section between Kamloops and Hope, British Columbia, was the most costly section of the said railway to construct west of Fort William. 4. The cost of construction per mile of line of section of said railway through the Fraser River Canyon between Kamloops and Hope. 5. The cost of construction per mile of line of the Canadian National Railway between Ottawa

Contents of Volume 6—*Continued*

and Montreal, including the Montreal tunnel. 6. The cost of construction of the Canadian National Railway per mile of line between the following points: (*a*) between Montreal and Winnipeg, including the Montreal tunnel; (*b*) between Winnipeg and Vancouver. 7. Whether it costs more to haul freight over the C.P.R. between Vancouver and the prairies than it does to haul the same freight between Vancouver and the prairies over the C.N.R. or between Prince Rupert and the prairies over the Grand Trunk Pacific. 8. When the C.N.R. Company and the G.T.P. Company commenced operations between the prairies and Pacific coast points, whether the said railway companies were allowed by the Board of Railway Commissioners to adopt the scale of rates applied by the C.P.R., and based on the cost of operation of the C.P.R. through the mountains, and which said scale of rates was known as the mountain scale. 9. Whether the same scale of rates, viz: the mountain scale now in application applies to the C.P.R. on the movement of all goods in, to, from, or through British Columbia in the same way that the said mountain scale applies to the movement of goods over the C.N.R. 10. If it is the intention of the Government to see that the rates on the C.N.R., where the said railways move through British Columbia on grades equally favourable to those obtaining on the prairies, are no higher than the prairie scale of rates. 11. Whether the winter weather increases the cost of operating railways in the prairies and in eastern Canada over and above the cost of operating the same railways during the summer season. 12. Whether the C.P.R. is divided into eight operating divisions, and whether the operating expenses of the said railway is kept by divisions, viz: the divisions of New Brunswick, Quebec, Ontario, Algoma, Manitoba, Saskatchewan, Alberta and British Columbia. 13. The mileage of the C.P.R. in each division. 14. The main line boundaries of such divisions. 15. Whether the C.N.R. system is divided into operating divisions, viz: lines east and lines west with the dividing point at Fort William. 16. Whether there are any other divisions of the Canadian National Railways system for which accounts of operating expenses or revenues are kept. If so, what they are, and when the same were established. 17. The total operating expenses of the C.P.R. per mile of line for the years 1917, 1920 and 1921 for the following divisions, viz: British Columbia, Manitoba, Quebec, New Brunswick. 18. The total cost of operation of C.P.R. as expressed in the cost per gross ton mile in the years 1917, 1920 and 1921 in the following of the said divisions: British Columbia, Quebec, New Brunswick. 19. The total cost of operation of the C.P.R. as expressed in the cost per car mile in the following of the said divisions, viz: British Columbia, New Brunswick, Quebec. 20. The cost of operation of the C.P.R. as expressed in the cost per mile of line in the said divisions of Alberta and British Columbia taken together, and in the said divisions of New Brunswick and Quebec taken together for the years 1917, 1920 and 1921. 21. The density of traffic as shown in car miles per the mile of line, and in gross ton miles per mile of line, for the years 1917, 1920 and 1921, in the following of the said divisions: (*a*) British Columbia; (*b*) New Brunswick; New Brunswick and Quebec, taken together; (*c*) British Columbia and Alberta, taken together. 22. Whether the C.P.R. Company is divided into two main divisions for accounting purposes, viz: lines east, and lines west, and whether the divisional point of the said system of railways is Fort William, Ontario. 23. The net revenues per mile of line, and per train mile produced by the C.P.R. Company on lines east, and lines west for the years 1916, 1917, 1918, 1919 and 1920. 24. The net earnings of the C.P.R. per mile of line, and per train mile for the years 1912 to 1916, both inclusive, in the following of the said divisions, viz: New Brunswick or Atlantic, British Columbia. Presented May 2, 1923. Mr. McBride.....*Not printed.*

196. Steamboat Inspection Report, supplement to Fifty-fifth Annual Report of the Department of Marine and Fisheries, for the fiscal year, 1921-22, (Marine). Presented May 2, 1923.....*Presented in printed form.*

197. Return to an Order of the Senate, dated April 13, 1923, for a copy of all correspondence, letters and telegrams between the Boards of Trade and Municipal Councils of the Cities of Quebec, St. John, Moncton and Halifax, and the Government of Canada, the Canadian Railway Commission and the Directors of the Canadian National Railways since the 1st of July, 1922, to this date in reference to the utilization of the Transcontinental line to Quebec, St. John and Halifax. Presented May 2, 1923. Hon. Mr. Turgeon.....*Not printed.*

198. Return to an Order of the House of the 12th March, 1923, for a copy of all papers, correspondence, letters, documents, telegrams and other writings exchanged between

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the Post Office Department, the Civil Service Commission, at Ottawa, and Mr. Camile Bolté, an employee of the Post Office, at Montreal; also between Mr. Gaboury, Superintendent of Post Office, at Montreal, Mr. P. T. Coolican, at Ottawa, Mr. Leonard, Postmaster, at Montreal, and the Post Office Department in regard to Mr. Camille Bolté. Presented May 4, 1923. Mr. Archambault. *Not printed.*

199. Return to an Order of the House of the 21st March, 1923, for a copy of all papers, writings, telegrams, affidavits or documents of any kind in the possession of the Government, relating to appointments of officers and men by the present Government on the boat *Eureka* at Pointe au Pere, or relating to the conduct of the men so placed by the Government in charge of such boat. Presented May 7, 1923. Mr. Hanson..... *Not printed.*

200. Return to an Address to His Excellency the Governor General of April 30, 1923, for a copy of all letters, papers, telegrams, petitions, Orders in Council and other documents regarding the construction of a bridge on the Lachine Canal, in St. Henry Ward, in the City of Montreal. Presented May 8, 1923. Mr. Mercier. *Not printed.*

201. Copy of Draft Agreement made between the British Government and the Canadian Government respecting prepaid passages for agricultural workers, household workers, juvenile immigrants, coming to Canada. Presented May 9, 1923 *Printed for distribution to Senators and Members.*

202. Statement prepared by the Geological Survey of Canada respecting a reported discovery of placer gold in Labrador. Presented May 9, 1923.....*Not printed.*

203. Return to an Order of the House of the 7th March, 1923, for a Return showing: 1. Names of the Customs Officials in the County of Halton and where they are located. 2. Amount collected in each office in the said county in (*a*) 1921, (*b*) 1922. 3. Total expense of each office, including the salary of the official, during the years 1921 and 1922 respectively. 4. Name of Customs Official in Streetsville, County of Peel, Ontario. 5. Amount collected in that office during the years 1921 and 1922 respectively. 6. Total expense of the office, including salary to the official, during the said years respectively. 7. What part of the receipts from this office was collected on goods entering the County of Halton in the years 1921 and 1922 respectively. Presented May 9, 1923. Mr. Anderson.....*Not printed.*

204. Return to an Order of the Senate, dated February 27, 1923, for a Return showing: 1. How many private or official cars are there connected with the Canadian National Railways. 2. What officials of the road are given the use of private or official cars. 3. What is the average initial cost of a private or official car fully equipped. 4. How many men constitute the "crew" of a private or official car and and what are their several positions and rate of pay. 5. Are these private or official cars supplied with food when used on trips and at whose expense. 6. Outside of private or official cars maintained by the Railway Department, how many other private or official cars are maintained and used in connection with the administration of the Government of Canada. 7. By whom respectively are these cars used. 8. Are crews provided for these cars and at whose expense. 9. How many official motor cars are attached to the Department of Militia and Defence. 10. What was the initial cost of same. 11. What is the cost of the annual upkeep. 12. By whom and for what purposes exclusively are these cars used. 13. How many official motor cars other than those belonging to the Militia Department are maintained by the Government of Canada at the public expense in Ottawa and by whom are they used and what is the aggregate cost of maintenance of said motor cars together with their initial cost. 14. How many motor cars (if any) are maintained by the Government of Canada and what was the initial cost of said cars and what is the annual cost of maintenance of same. 15. How many chauffeurs are in charge of the official motor cars of the Department of Militia and Defence. What pay and allowances do they receive respectively. 16. How many if any chauffeurs are employed or paid by the Government of Canada outside of those employed by the Department of Militia and Defence. Presented May 9, 1923. Hon. Mr. Fowler.....*Not printed.*

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205. Return to an Order of the House of the 22nd March, 1923, for a Return showing: 1. Whether all the departments of the Government are making their purchases through the Purchasing Commission of Canada. 2. If not, what departments are, and what departments are not. 3. If all are not purchasing through the Commission, what the reason is. Presented May 14, 1923. Mr. Kennedy (Edmonton). *Not printed.*

206. Return to an Order of the House of the 5th March, 1923, for a Return showing: 1. Number of temporary employees made permanent by the Civil Service Commission, between March 15, 1921, and the day the late Government resigned. 2. How many of the above-mentioned employees passed the Civil Service examination. 3. How many of the said employees cannot write and were unable to sign their names, but simply affixed a cross to the form of oath required by the Act. Presented May 14, 1923. Mr. Archambault.....*Not printed.*

206*a*. Return to an Order of the House of the 22nd March, 1923, for a Return showing: 1. Number of temporary clerks in the Civil Service made permanent by the Civil Service Commission since the 1st January, 1922. 2. The names of such clerks and what their positions are. 3. At what date they were made permanent. Presented May 18, 1923. Mr. Archambault.....*Not printed.*

207. Return to an Order of the House of the 21st February, 1923, for a copy of all tenders, contracts and other documents pertaining to the coal purchased by the Dominion Government during the year ending January 31, 1923, in the City of Winnipeg, used in connection with federal buildings, etc., including a list of persons from whom said coal was purchased, the amount purchased in each case, and the amount paid to the Canadian Coal Sales Company, Limited, for coal supplied as abovementioned. Presented May 14, 1923. Mr. McMurray.....*Not printed.*

208. 208*a*. Returns to an Order of the House of the 18th April, 1923, for a return showing the names of newspaper companies and printing companies who have received federal moneys for printing, since January 1, 1922, with the respective amounts received by each of said companies. Presented May 16, 1923. Mr. Black (Yukon). *Not printed.*

208*b*. Return to an Order of the House of the 30th April, 1923, for a Return showing the names of newspaper companies and printing companies who have received federal moneys for printing since January 1, 1918, with the respective amounts received by each of said companies. Presented May 28, 1923. Mr. d'Anjou.....*Not printed.*

208*c*. Statement showing: 1. The total sum paid by the Government for printing outside the printing bureau each year, for the past five years. 2. The cost to the Government of printing the Labour Gazette outside the printing bureau each year for the past five years. Presented May 30, 1923.....*Not printed.*

209. Return to an Order of the House of the 7th May, 1923, for a Return showing: 1. The names, official titles, and salaries of Officers-in-Charge of Dominion Buildings, Chief Architect's Branch, Department of Public Works, on January 1, 1912, 1922 and 1923. 2. In what cities or towns the offices of each are located. 3. The date of their appointment and how they have been classified. 4. The number of employees under each Officer-in-Charge on January 1, 1912, 1922 and 1923. 5. The number of buildings each Officer-in-Charge had under his charge on January 1, 1912, 1922 and 1923. 6. Whether all the positions of these Officers-in-Charge have been classified by the Civil Service Commission or Arthur Young & Company. 7. Whether any positions of these Officers-in-Charge are vacant. 8. If so, what they are, and since what date they have been vacant. 9. The causes of these vacancies. 10. In what locality they have occurred. Presented May 16, 1923. Mr. Desiauriers.....*Not printed.*

210. Return to an Order of the Senate dated April 13, 1923, for a Return showing the total cost of the Civil Service for the year ending March 31, 1919, and for the year ending March 31, 1922. (By the Civil Service is meant all the Government employees affected by the provisions of the Civil Service Act, 1919, and its amendments). Presented May 16, 1923. Hon. Mr. Bradbury.....*Not printed.*

211. Report of the Royal Commission appointed to inquire into the Lake Grain Rates. Presented May 18, 1923.
Printed for Sessional Papers and distribution to Senators and Members.

Contents of Volume 6—*Continued*

212. Return to an Order of the House of the 30th April, 1923, for a return showing the names of grain dealers in the western inspection division who have taken out a license under the Grain Act. Also a list of those operating in grain and who have not taken out such license. Presented May 18, 1923. Hon. Mr. Stevens.
Not printed.

213. Return to an Order of the House of the 30th April, 1923, for a Return showing: 1. Whether the Government, since Peace was signed, ever considered the utilization of Valcartier Camp grounds. If so, what the result was of such consideration. 2. Whether it is a fact that this land, formerly under cultivation, is now a complete loss to agriculture as well as to the Municipality of Ste. Catherine, on the outskirts of the City of Quebec. 3. Whether it is true that the waterworks system on this property will soon be worthless. 4. Whether it is a fact that the whole property, situated as it is, only a few minutes distant from Valcartier Station and lying on both sides of Jacques Cartier River, could be sold advantageously. 5. Whether the Government has received any offer for this property or whether any representations have been made on this subject. 6. Name of the present caretaker of the said Valcartier Camp. Under what circumstances and by whose influence he was appointed. Whether his appointment was subject to cancellation at the pleasure of the Government. What his duties are. Who his immediate superior is. Whether the Government receives regular reports concerning this camp and this caretaker. Has the caretaker any assistants. If so, their names and whom appointed. Whether the said camp, as a military property, is inspected from time to time. Whether reports are made to the Department of Militia. Whether the Government is aware that last summer, 1922, there were a large number of people occupying the various camp buildings. In what right and under whose authority said buildings were occupied. 7. Whether the Commanding Officer of Military District No. 5 has any supervision over this property and does he make reports. If so, whether the Government will produce such reports. Whether there is any correspondence between the Department of Militia and the Department of Agriculture, concerning this property. If so, whether the Government will produce it. Salary of this caretaker and his assistants. 8. Whether it is a fact that one of the buildings on this camp was destroyed by fire in the month of January last. Whether a military inquiry was made as to the causes of this fire and to that end were all witnesses sought for or was the department satisfied with a mere report. Whether there are any correspondence or documents on the subject. If so, whether the Government will produce them. 9. Whether it is a fact that in 1915 a road was built from the said camp to Quebec and that the Ste. Catherine public road between Range IV and St. Michel was then closed by the military authorities and that since that time the camp road alone is and can be used. Whether or not this road is the property of the Government and as such must it be looked after by the Government winter and summer. Whether orders were given to this effect and is there any control over the execution of the orders given. Whether it is the caretaker of the camp who is responsible for the maintenance of this road. Presented May 21, 1923. Mr. Delisle..... .....*Not printed.*

214. Return to an Order of the House of the 23rd April, 1923, for a Return showing the total expenditure for each department of the Government for civil salaries, both for temporary and permanent employees, for the fiscal years from 1911 to 1922, both inclusive. Presented May 21, 1923. Mr. Michaud.....*Not printed.*

215, 215a. Returns to an Order of the House of the 12th February, 1923: 1. For a copy of all papers, correspondence, letters, documents, or other writings of any kind since December 31, 1921, passing between (*a*) members of the Government or officials of the Departments of the Government and the Canadian National Railway Company or Canadian Northern Railway Company or any other railway company owned by Canada; (*b*) members of Parliament and the Canadian National Railway Company or Canadian Northern Railway Company or any other railway owned by Canada. 2. A copy of all papers, correspondence, letters, documents, or writings of any kind between members of the Government or officials of the Government and the late directors of the Canadian National Railway Company relative to the resignation of such directors. 3. A copy of all papers, correspondence, letters, documents, or writings of any kind between members of the Government or officials of the Government and the late directors of the Grand Trunk Railway Company relative to the resignation of such directors. Presented May 21 and 30, 1923. Sir Henry Drayton.....*Not printed.*

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216. Return to an Order of the Senate, dated April 13, 1923, for a return showing: (*a*) The authority granted to the Imperial Oil Company to lay a pipe line from the wharf of the Government Railway to their tanks at Barrack Point, Sydney, Nova Scotia, over land belonging to His Majesty. (*b*) The amount charged for this privilege and for wharfage on a cargo or cargoes discharged there last autumn. (*c*) For how long this charge is established. (*d*) All correspondence between the Canadian National Railways or any department of the Government with the Imperial Oil Company or its representatives, and documents relating to this matter. Presented May 30 1923. Hon. Mr. McLennan.....*Not printed.*

217. Return to an Order of the Senate, dated April 26, 1923, for a Return showing what sums of money have been paid by the various departments of the Government for express charges, railway fares, and telegraph tolls, between January 1, 1922, and December 31, 1922, and to what railway, express and telegraph companies respectively were such sums paid. Presented May 30, 1923. Hon. Mr. McDonald. *Not printed.*

218. Return to an Order of the House of the 7th May, 1923, for a copy of all papers, documents, sale specifications, terms and conditions of sale, agreements, official reports recommending sale, and all other correspondence relating to the sale of about 27 of the smaller ships of the Canadian Government Merchant Marine (Limited). Presented June 1, 1923. Mr. Church.....*Not printed.*

219. Return to an Order of the House of the 16th April, 1923, for a return showing the earnings and expenditures of the following vessels on the trips set forth below: 1. *Canadian Winner,* leaving Vancouver August 8, 1922, for the Orient, returning October 12, 1922. 2. *Canadian Inventor,* leaving Vancouver September 28, 1922, for the Orient, returning November 20, 1922. 3. *Canadian Britisher,* leaving Vancouver, May 13, 1922, for Australia, returning October 4, 1922. 4. *Canadian Traveller,* leaving Vancouver July 13, 1922, for Australia, returning December 1, 1922. 5. *Canadian Farmer,* leaving Vancouver July 18, 1922, for California points, returning August 12, 1922; also from Vancouver, August 14, for California points, returning September 13, 1922. 6. *Canadian Observer,* leaving Vancouver July 7, 1922, for California, returning August 23, 1922; also August 8, 1922, for California points, returning September 24, 1922. Presented June 1, 1923. Hon. Mr. Stevens.....*Not printed.*

220. Return to an Address to His Excellency the Governor General of the 25th April, 1923, for a copy of all Orders in Council, letters, agreements, telegrams, and other correspondence relating to the sale of the Toronto Suburban Railway or any part thereof by the Government of Canada or the Canadian National Railways to the Hydro Electric Power Commission of Ontario or the City of Toronto. Presented June 1, 1923. Mr. Church.....*Not printed.*

221. Return to an Order of the House of the 7th May, 1923, for a copy of all correspondence, contracts, agreements, letters, telegrams and other documents relating to the purchase of property on the northwest corner of King and Yonge streets, Toronto, by the Government of Canada or the Canadian National Railways, for railway purposes. Presented June 1, 1923. Mr. Church.....*Not printed.*

222. Return to an Order of the House of the 30th May, 1923, for a copy of all returns made to the Minister during the last fiscal year under subsection 2 of section 91 of the Bank Act. Presented June 5, 1923. Mr. Coote.....*Not printed.*

223. Return to an Order of the House of the 30th April, 1923, for a return showing a list of cases where remissions have been granted to persons convicted and fined for breach of the Inland Revenue Act in establishing or conducting or being connected with the establishment or conduct of illicit stills or illegal stills, and showing the names of the persons in respect of whom such remissions were made, and the counsels or lawyers acting for such persons in each case; said return to cover all cases since the first day of January, 1922, and to show the person or persons directly benefiting in each case from such remission. Presented June 5, 1923. Mr. Ladner.....*Not printed.*

224. Return to an Order of the House of the 26th March, 1923, for a return showing a statement of: 1. All annual and supplementary reports of the Departments of the public Service which, since the appointment of the Editorial Committee (October 4, 1917) to date, have been printed in the English language, and which have not, at the time or later, been translated into the French language, or which,

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having been translated, have not been printed. 2. All pamphlets and miscellaneous book work which have been printed in the English language, during the same period to date, and which have not, at the time or later, been translated into the French language, or which, having been translated, have not been printed. 3. All the orders or rulings issued by either the Editorial Committee or the Departments, under which such translation has not been effected, or under which, after translation, the printing of the said documents has not taken place. Presented June 5, 1923. Mr. Vien.....*Not printed.*

225. Return to an Order of the House of the 30th May, 1923, for a Return showing: 1. How many Civil Servants employed full time there are in all departments, resident in the city of Ottawa. 2. How many Civil Servants employed full time there are in all the departments, resident outside the city of Ottawa. Presented June 5, 1923. Mr. McQuarrie.....*Not printed.*

226, 226*a*. Returns to an Order of the House of the 5th March, 1923, for a Return showing the number of dismissals of officers or employees of the Government, and all others appointed at any time by the Government of Canada (in cases where the position vacated, or required to be vacated, has been filled by another, or is intended to be filled by another), from the 1st day of January, 1922, until the passing of this Order, and showing also the position vacated or requested to be vacated, and the names of the persons so dismissed, or whose resignations were so requested and the reason in each case for such dismissal or request for resignation, and the name of the person now occupying the position thus vacated, also showing, in each case whether an investigation into charges made against the person dismissed or requested to resign was made, and by whom. Presented June 6 and 8, 1923. Mr. Hanson. *Not printed.*

227. Copy of a Memorial presented to the Prime Minister of Canada from the Stockholders' Committee containing representations on behalf of the holders of the Grand Trunk Pacific Railway four per cent debenture stock. Presented June 6, 1923.....*Presented in printed form.*

228. Return to an Order of the House of the 7th May, 1923, for a Return showing all real estate properties, with the approximate location and area and brief description of each, sold or agreed to be sold by the Canadian National Railway Company or its subsidiaries since October 4, 1922, and showing, secondly, all real estate properties purchased or agreed to be purchased or in respect of which an offer to purchase has been made by the Canadian National Railway Company or any of its subsidiaries since said date, and in each case showing the sale price or the purchase price, as the case may be, and the names of the purchasers and vendors. Presented June 7, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

228*a*. Return to an Address to His Excellency the Governor General of the 11th April, 1923, for a copy of all Orders in Council passed since January 1, 1922, authorizing or ratifying purchases or sales of lands or property either by the Canadian Northern Railway Company, or any of its subsidiaries, or by the Canadian National Railways, or by the Grand Trunk Railway Company, or any of its subsidiaries. Presented June 7, 1923. Mr. Boys.....*Not printed.*

229. Return to an Order of the House of the 14th May, 1923, for a copy of all papers, letters, telegrams and other documents, relating to the Margaree River Salmon Fisheries Association during the year 1922 and the present year, including in particular, all papers, letters, telegrams and other documents relating to the membership or ownership of such association, and the distribution of moneys payable by the Department of Marine and Fisheries to the said association or the members thereof. Presented June 8, 1923. Mr. Hanson.....*Not printed.*

230. Supplementary Statement showing details of Appropriations for Canadian National Railways, 1923-24. Presented June 14, 1923.....*Not printed.*

231. Return to an Order of the House of the 5th March, 1923, for a copy of all correspondence exchanged between the Government and any firm or party pertaining to the occupancy of Arctic Islands, and northern Quebec, by various expeditions in those regions, reports on results of said expeditions; also copy of all contracts, if any, entered into between the Government and any firm or party granting privileges on said territory. Presented June 14, 1923. Mr. Parent...*Not printed.*

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231*a*. Return to an Order of the House of the 18th June, 1923, for a Return showing: 1. Whether the Government intend to send an expedition to the Arctic Islands during this year. If so, for what purpose. 2. Whether the Government has at its disposal, for the said purpose, a vessel by the name of *Arctic*. 3. Whether the said vessel ever made trips into Arctic regions. If so, (*a*) On what dates. (*b*) Who the members of the crew were. (*c*) Number of Government departments represented on said vessel, and the names of said representatives and their respective salaries. (*d*) Cost of said expeditions, and expenses incurred by each department. 4. Whether the Government intend to specially equip one or more vessels for the Arctic regions. If so, what amount has been agreed upon for each of these vessels. 5. Whether the Department established Mounted Police Posts in certain localities of said regions. If so, number of men at present in said localities and their duties. 6. Whether the Government intend to send artists to above regions to take moving pictures. 7. Whether the Government has any knowledge of a murder being committed in those regions. If so, what measures have been taken to bring the supposed murderers to trial. Presented June 21, 1923. Mr. Parent ..... *Not printed.*

232, 232*a*. Returns to an Order of the House of the 9th May, 1923, for copy of all correspondence, telegrams or other communications passing during the summer or fall of 1922 between the Dominion Government or any of its ministers or representatives, and the Dominion Marine Association or any of its agents or representatives, or of any other person or persons whatsoever, in any way relating to the abrogation or suspension of the Dominion Coastal Shipping Regulations, or in any way relating to the grain congestion at lake ports or Montreal, or to the alleged combine, or the imposition of exorbitant rates by shipping interests engaged in the grain trade. Presented June 14 and 21, 1923. Mr. Coote..... *Not printed.*

233. Copy of Memorial on behalf of the Preference and Common stockholders of the Grand Trunk Railway Company of Canada, of November 27, 1922, to the Prime Minister of Canada, and reply of Canadian Government thereto, covering Report of the Canadian Committee which examined for the Canadian Government the representations made on behalf of the Grand Trunk shareholders. Presented June 15, 1923..... *Not printed.*

234. Return to an Order of the House of the 23rd April, 1923, for a copy of the Report of 1923 of the Montreal Harbour Commission on the construction of the new bridge between Montreal and Longueuil, and also a copy of the plans prepared by the Harbour Commission for the construction of said bridge. Presented June 21, 1923. Mr. Archambault..... *Not printed.*

235. Return to an Order of the House of the 13th June, 1923, for a Return showing: 1. (*a*) How many public terminal elevators in Fort William and Port Arthur have private terminal elevators which are owned by the same company, or practically the same company, or whose shareholders and executives are interlocked and associated in both enterprises; and how many of these said elevators have facilities for direct connections for transferring grain from the private elevator to the public; (*b*) Whether any direct transferring between a public and private elevator has ever been done, or reported to have been done; (*c*) Whether the practice is being carried on at the present time. (*d*) By whose authority the transferring, if any, was done. (*e*) Whether the Canada Grain Act does not state that a private and a public elevator shall have no physical connection. 2. Whether all the grain at a terminal point, as provided by the Canada Grain Act, is officially weighed in and out of all elevators. 3. Whether all elevators at Fort William and Port Arthur are weighed up annually, as provided by the Canada Grain Act. If not, why not. 4. Whether the Inspection Department inspects grain and issues certificates according to section 27 of the Grain Act. 5. (*a*) In the loading of grain on boats at waterfront elevators situated at Port Arthur and Fort William, what method of inspection is carried on by the Inspection Department; (*b*) Whether samples are taken from the belt in the tunnels of the elevator, or from the running stream of grain when it is running into the boat, or whether it is taken both in the tunnel of the elevator and from the running stream; (*c*) In the case of a difference between the sample taken at the tunnel and the one taken from the running stream into the boat, which sample is considered official. 6. (*a*) Whether the Inspection Department determines the amount of excess moisture that is contained in tough, damp and wet grain, and places same on each certificate issued for off-grade grain; (*b*) Whether the terminal

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elevator takes out the excess moisture above normal, when drying grain as per their tariff; (*c*) Whether moisture tests are made before grain is dried in public termihal elevators to ascertain what shrinkage or loss will be charged the owner of the grain by the elevator performing the drying. If not, how is the shrinkage arrived at. (*d*) Whether the Inspection Department verifies and sees that terminal elevators take out all excess moisture over normal on grain they are drying according to their tariff. 7. What authority the Inspection Department demands of a terminal elevator as to ownership or authorized agency, before any parcel can be loaded out; and whether inspection is made accordingly to ensure that the quality of grain or grain by-products ordered out by the owner or authorized agent is up to that received by the elevator from the owner. 8. Whether the Inspection Department issues and charges a fee for inspecting grain or grain by-products that do not represent the quality as ordered out by the owner or authorized agent. 9. If contract wheat contains one to two per cent of small and shrivelled wheat, whether the Inspection Department makes this car a "clean to clean," or whether they put one or two per cent dockage, as the case may be, on this car. 10. The charges levied by the Government for inspection and weighing grain in each consecutive year since 1912. 11. Whether grain arriving at a public terminal elevator in the Western Inspection Division, carrying a grade certificate and binned under Government supervision, as provided for by the Canada Grain Act, is subject to another inspection charge on being loaded out. If so, why the duplicate inspection. 12. Whether the weighing and inspection charges are based on the actual cost of the services rendered, and how this is determined. 13. Whether the owner of grain, the grade of which is in dispute with the Inspection Department and placed for survey, is entitled to a sealed portion of official sample the survey is determined on. If so, from whom he obtains same. Presented June 21, 1923. Hon. Mr. Stevens.....*Not printed.*

236. Return to an Order of the House of 16th April, 1923, for a copy of all correspondence, letters, telegrams and other documents passing between the Right Honourable the Prime Minister, the Honourable Minister of Railways and H. R. Grant, of Sydney Mines, Nova Scotia, or other persons, having reference to the transportation of liquor, over Canadian National Railways or other lines under the control of the Canadian National Railways, into the Province of Nova Scotia. Presented June 21, 1923. Hon. Mr. Stevens.....*Not printed.*

237. Return to an Order of the House of the 30th May, 1923, for a copy of all correspondence, telegrams, reports, memoranda and other documents, passing between the Department of Railways and Canals or the Department of Marine and Fisheries and Messrs. Fennell, Henry and Smith, in regard to the Grain Elevator System from Fort William to Montreal, during the years 1922 and 1923. Presented June 25, 1923. Mr. Coote.....*Not printed.*

238. Return to an Order of the House of the 14th May, 1923, for a return showing all orders for equipment placed by the Canadian National Railways since October 4, 1922, including orders for cars of different kinds, separately stated; for engines of different kinds, separately stated, with prices in each case or basis of prices, and comparison of such prices with last prices at which similar goods were ordered. The said return to contain also names of firms and location of factories, with whom such orders have been placed, and where same are to be filled. Also showing all correspondence and requisitions between officers of the companies and any member of the Government referring to the necessity for such orders. Presented June 25, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

239. Return to an Order of the House of the 12th February, 1923, for a copy of all correspondence, writings, documents, and as well a complete statement of regulations and conditions and full arrangements entered into between representatives of Canada and representatives of Great Britain in respect of the admission of Canadian store cattle and Canadian breeding cattle into Great Britain. Presented June 25, 1923. Rt. Hon. Mr. Meighen.....*Not printed.*

240. Return to an Order of the House of the 15th February, 1923, for a Return showing: 1. The number of officials of the Department of Agriculture who attended fairs during the nine months ended December 31, 1922, and what duties they fulfilled. 2. The total expense incurred by such officials. Presented June 25, 1923. Mr Leader.....*Not printed*

Contents of Volume 6—*Continued*

241. Report of the Air Board, for the year 1922. Presented June 28, 1923.
Presented in printed form.

242. Return to an Order of the House of the 6th June, 1923, for a return showing all cases where fines and costs have been in whole or part remitted after conviction for violation of the Income War Tax Act of 1917, since January 1, 1922. Such return also showing at whose instance or at whose representation, verbal or otherwise, such remissions have been made, and also showing in each case when the law was or has been complied with by the delinquent. Presented June 28, 1923. Mr. Stewart (Leeds).....*Not printed.*

243. Partial Return to an Order of the House of the 19th February, 1923, for a Return showing: 1. Names of the Government employees, temporary or permanent, employed in the city and district of Quebec who have been dismissed between October 15, 1911, and December 25, 1921. 2. Names of those dismissed following an inquiry. 3. Names of those dismissed without an inquiry. 4. How many of these employees have been reinstated, and on what dates. Presented June 28, 1923. Mr. Cannon.....*Not printed*

244. Return to an Order of the House of the 11th June, 1923, for a copy of all communications passing between W. A. Dryden, of Ontario County, Ontario, and the Government of Canada or any member thereof, or any Deputy Minister thereof, and also all reports made by either W. A. Dryden, or Duncan Marshall, to the Government or any department thereof. Presented June 28, 1923. Mr. Maybee.
Not printed.

245. Partial Return to an Order of the House of the 19th February, 1923, for a Return showing: 1. Names of the civil servants employed in the various Government departments who are stationed in the city and district of Quebec. 2. On what dates they were employed. 3. On whose recommendation each appointment was made. 4. The nature of their employment and the salary of each. 5. The names of those who passed the Civil Service examinations. Presented June 28, 1923 Mr Cannon.....*Not printed.*

246. Return to an Order of the House of the 11th June, 1923, for a Return showing: 1. The requirements and procedure regarding liquor (spirits, wine and beer) exported from Canada (*a*) when drawback is allowed; (*b*) when liquor is duty paid. 2. A statement by years for the last ten years giving (*a*) the quantity of liquor manufactured in Canada; (*b*) the quantity of liquor imported into Canada; (*c*) the quantity of liquor exported from Canada (1) with drawback, (2) duty paid; (*d*) the quantity of liquor entered for consumption in Canada; (*e*) the gross revenue collected, customs and excise; (*f*) the gross amount rebated, customs and excise. Presented June 28, 1923. Mr. Good.....*Not printed.*

247. Return to an Order of the Senate, dated March 8, 1923, showing: 1. Was any fish trawler which was not registered in Canada allowed in 1922 to land fish at any maritime province port without payment of customs duty on its catch. 2. (*a*) From what trawler or trawlers was fish so landed. (*b*) What was the respective value of each cargo so landed. (*c*) At what port or ports were such cargoes landed. (*d*) On what date respectively was each cargo landed. 3. Under what (*a*) provision of the customs law of Canada or (*b*) other authority was any such cargo of fish allowed to be so landed. 4. Is it the policy of the Government of Canada to allow fish trawlers not registered in Canada and not manned by Canadian fishermen to land their catches at Canadian ports without payment of customs duty. Presented June 28, 1923. Hon. Mr. Tanner.....*Not printed.*

248. Return to an Order of the House of the 6th June, 1923, for a copy of all correspondence, letters, telegrams, reports and other documents, relating to the closing of the Soldiers' Comforts Branch at Toronto on June 20th next, of the Department of Soldiers' Civil Re-establishment. Presented June 29, 1923. Mr. Church.
Not printed.

249. Return to an Address to His Excellency the Governor General of the 11th June, 1923, for a copy of all letters, reports, agreements, telegrams, Orders in Council, and other correspondence, exchanged between the Government of Canada and the Government of the United States in reference to the International Deep Waterways Report, and a proposed agreement for the St. Lawrence Ship Channel, since the last session of Parliament, 1922. Presented June 29, 1923. Mr. Church.
Not printed.

Contents of Volume 6—*Concluded*

250. Return to an Address to His Excellency the Governor General of the 28th May, 1923, for a copy of all correspondence, letters, telegrams, Orders in Council and other documents, regarding the sale of a parcel of land, under Order in Council No. 811, dated April 26, 1922, to the Alberta Drainage Company, Edmonton, Alberta, containing by admeasurement 12,800 acres more or less. Presented June 29, 1923. Mr. Kellner.....*Not printed.*

251. Return to an Order of the House of May 7, 1923, for a Return showing: 1. The total number of employees, both permanent and temporary, of the Dominion Government as of thirty-first of March last, (*a*) in the inside service, and (*b*) in the outside service. 2. The total cost to the Dominion for the last fiscal year in salaries and allowances of, (*a*) the inside service, and (*b*) the outside service. Presented June 29, 1923. Mr. Hanson..... *Not printed.*

252. Partial Return to an Order of the House of the 5th March, 1923, for a Return showing the various technical and professional officials appointed to the Civil Service of Canada during the years from September, 1911, to December, 1922, both years inclusive, with a statement showing the salaries of each official, the qualification of each official and the method employed by the Civil Service Commission to select each said technical and professional official; also a detailed statement naming the examiners in each case and the office to which the party selected was appointed. Presented June 29, 1923. Mr. Martell.....*Not printed.*

253. Return to an Order of the House of the 13th June, 1923, for a copy of all correspondence, telegrams, papers, writings and documents of any kind, passing between any member or Department of the Government and the Canadian National Railways or Canadian Mercantile Marine managers or directors or officers, since January 1, 1922, relating in any way to the vessels of the Canadian Mercantile Marine, their use or suitability, or making in any way recommendations as to sale or other disposition of said vessels. Presented June 29, 1923. Sir Henry Drayton. *Not printed.*

254. Return to an Order of the House of the 6th June, 1923, for a Return showing: 1. By what method or in accordance with what principle the insurance business, arising out of the transactions of the Soldiers' Settlement Board at Edmonton is distributed. 2. To what persons, firms or companies, acting as agents for insurance companies and resident in Edmonton, this insurance business was given in- (*a*) year 1921, and (*b*) year 1922, and the premiums paid to each of such persons, firms or companies. 3. To what persons, firms or companies, acting as agents for insurance companies, and resident in Edmonton, this insurance business was given from January 1, 1923, until the present time, and the premiums paid to each of such persons, firms or companies. 4. Whether any of the persons above mentioned have had no service overseas in the late war. If so, who. 5. Whether it is the policy or the intention of the Government to give any of the insurance business, arising out of the transactions of the Soldiers' Settlement Board at Edmonton, to persons who did not serve overseas in the late war. 6. Whether it is the policy or the intention of the Government to distribute the business of insurance, arising out of the transactions of the Soldiers' Settlement Board at Edmonton, to a list of selected persons. If so, the names of these persons. Presented June 30, 1923. Mr. Boys.....*Not printed.*

DOMINION OF CANADA

THE DEPARTMENT OF TRADE AND COMMERCE

MINISTER
Hon. J. A. ROBB

DEPUTY MINISTER
F. C. T. O'HARA

REPORT

RELATING TO

MAIL SUBSIDIES AND STEAMSHIP SUBVENTIONS

FOR THE

Fiscal Year ending March 31, 1922, with Traffic Returns, etc., to December 31, 1922.

This Report is published as a Supplement to the Annual Report of the Deputy Minister

PRINTED BY ACT OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1923

EXPLANATION OF ESTIMATES for the year ending March 31, 1924, as compared with those for the year ending March 31, 1923, with statements of services rendered and expenditures to December 31, 1922, on account of Mail Subsidies and Steamship Subventions.

XVII.—MAIL SUBSIDIES AND STEAMSHIP SUBVENTIONS

Amount to be voted..... $1,128,275.66

Page No.	Vote No.		1922-23	1923-24
		ATLANTIC OCEAN.	$ cts.	$ cts.
5	169	Canada and Newfoundland	35,000 00	35,000 00
6	170	Canada, the West Indies and South America	340,666 66	340,666 66
10	171	Canada and South Africa	146,000 00	146,000 00
		PACIFIC OCEAN.		
13	172	Canada, and New Zealand (Pacific)	130,509 00	130,509 00
16	173	Prince Rupert and Queen Charlotte Islands	21,000 00	21,000 00
17	174	Victoria and San Francisco	3,000 00	3,000 00
19	175	Victoria, Vancouver and Skagway	25,000 00	25,000 00
20	176	Victoria and West Coast Vancouver Island	15,000 00	15,000 00
22	177	Vancouver and Northern ports of British Columbia	24,800 00	24,800 00
24	178	Vancouver and ports on Howe Sound	5,000 00	5,000 00
		LOCAL SERVICES		
27	179	Baddeck and Iona	9,000 00	9,000 00
28	180	Charlottetown and Pictou	8,000 00	8,000 00
29	181	Charlottetown, Victoria and Holliday's Wharf	4,000 00	4,000 00
30	182	Grand Manan and the mainland	15,000 00	15,000 00
31	183	Halifax, Canso and Guysboro	9,000 00	9,000 00
33	184	Halifax and La Have River	6,000 00	6,000 00
34	185	Halifax and Newfoundland *via* Cape Breton ports	5,000 00	5,000 00
36	186	Halifax and Spry Bay	6,000 00	6,000 00
38	187	Halifax, South Cape Breton and Bras d'Or Lakes	6,000 00	6,000 00
39	188	Halifax and West Coast Cape Breton	6,000 00	6,000 00
41	189	Mainland and Islands of Miscou and Shippegan	3,300 00	3,300 00
42	190	Mulgrave and Canso	13,500 00	13,500 00
43	191	Mulgrave and Guysboro	9,500 00	9,500 00
45	192	Newcastle, Neguac and Escuminac, Miramichi River and Bay	5,000 00	5,000 00
46	193	Pelee Island and the Mainland	11,000 00	11,000 00
49	194	Mulgrave, Arichat and Petit de Grat	10,000 00	10,000 00
50	195	Pictou, Montague, Murray Harbour and Georgetown	6,000 00	6,000 00
51	196	Pictou, Mulgrave and Cheticamp	11,000 00	11,000 00
53	197	Pictou, New Glasgow and Antigonish County	1,500 00	1,500 00
54	198	Port Mulgrave, St. Peter's, Irish Cove and Marble Mountain	8,000 00	8,000 00
55	199	Pictou, Souris and the Magdalen Islands	24,000 00	24,000 00
57	200	Quebec, Natashquan and Harrington	85,000 00	85,000 00
59	201	Quebec, Montreal and Gaspe	30,000 00	30,000 00
61	202	St. Catherine's Bay and Tadoussac	2,000 00	2,000 00
62	203	St. John and St. Andrew's, N.B.	4,000 00	4,000 00
63	204	St. John and Bear River	2,000 00	2,000 00
64	205	St. John and Bridgetown	1,500 00	1,500 00
65	206	St. John and Digby	15,000 00	15,000 00
66	207	St. John, Digby, Annapolis and Granville	2,000 00	2,000 00
68	208	St. John, Bay of Fundy, and Minas Basin	8,500 00	8,500 00
70	209	St. John and Wedgeport	5,000 00	5,000 00
71	210	St. John, Westport and Yarmouth	10,000 00	10,000 00
73	211	Sydney and Bay St. Lawrence	9,000 00	9,000 00
74	212	Sydney and Whycocomagh	7,000 00	13,000 00
76	213	Sydney, Bras d'Or Lake ports and West Coast of Cape Breton	14,000 00	14,000 00
77	214	Expenses of supervision	4,000 00	4,500 00
		Other appropriations for 1922-23, not required for 1923-24	3,000 00	.....
			1,124,775 66	1,128,275 66

ATLANTIC OCEAN SERVICES

CANADA AND NEWFOUNDLAND

Contract No. 60.

T. & C. File No. 28464.

Vote 169.—Canada and Newfoundland.—Steam service or services between—

1922–23 ..... $ 35,000
1923–24 35,000

Contractors.—Reid Newfoundland Company, Ltd., of St. John's, Nfld.

Contract Dated.—April 1, 1922.—*Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Three complete round trips each week between North Sydney and Port aux Basques. Should Port aux Basques or North Sydney be blocked with ice at any time, the service may during such period, at the option of the Contractors, be performed to Placentia or Argentia, Nfld., and Louisburg, N.S., respectively.

Ports of Call.—North Sydney (or Louisburg), N.S., and Port aux Basques (or Argentia or Placentia), Nfld.

Speed required.—Not stated.

Subsidy.—At the rate of $35,000 per annum, payable quarterly, on June 30, September 30, December 31, and March 31.

Mails.—To be carried free.

Canadian Trade Commissioners.—To be carried free.

Government Wharves.—Steamers are required to call at Government wharves whenever possible.

DISTANCES

	Miles
North Sydney to Port aux Basques	101
Louisburg to Placentia	250
North Sydney to St. John's	300

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions.			Tonnage			Passenger Accommodation			Refrigerator space.	N. H. P.	Speed.	Built		
	Length.	Breadth.	Depth.	Net.	Gross.	Capacity.	1st Class.	2nd Class.	3rd Class.				At	In	Of
	Ft.	Ft.	Ft.							c.ft.		Kts			
Kyle	220	32·3	18·3	548	1,055	.....	68	160	....	Nil.	263	12	Newcastle..	1913	Steel
Sagona	175	28·3	20·3	420	808	327	40	77	....	Nil.	136	11	Dundee.....	1914	Steel
Meigle	220	30	15	427	836	.....	.....	.....	.....	....	162	....	Glasgow....	1881	Iron

TRAFFIC RETURNS

Calendar Year	No. of round trips run	Passengers Carried		Tons Freight Carried	Live Stock	Mails		Subsidy Paid
		First Class	Second Class			Sealed Bags	Tied Sacks	
								$ cts.
1914	289	6,267	8,925	22,035	735	3,462	23,365	64,683 02
1915	216½	5,373	9,160	24,087	539	2,654	17,154	48,418 06
1916	284	7,656	13,596	32,635	1,729	3,309	22,739	63,625 58
1917	270	7,894	12,441	41,209	16,685	2,921	22,438	55,382 80
1918	255½	10,185	8,421	27,646	3,924	3,360	20,983	57,140 02
1919	254½	13,430	7,223	17,710	5,363	2,960	22,796	55,808 18
1920	159	9,550	7,862	26,534	1,809	1,698	17,969	27,731 36
1921	149	6,755	4,231	22,542	1,143	1,668	16,790	29,435 19
1922	130	In 3,166	1,476	18,148	826	780	11,815	
		Out 4,252	3,612	1,209	68	774	5,176	29,166 80
Total		7,418	5,108	19,357	894	1,554	16,991	

ORIGIN, QUANTITY AND VALUE OF CARGO EXPORTED FROM CANADA

(Including Live Stock)

Calendar Year	Canadian Origin			United States Origin			Total		
	Tons weight	Tons measurement	Value	Tons weight	Tons measurement	Value	Tons weight	Tons measurement	Value
			$			$			$
1914	13,286	Nil.	858,605	7,651	Nil.	587,196	20,937	Nil.	1,445,801
1915	16,510	Nil.	1,108,876	6,491	Nil.	643,885	23,001	Nil.	1,752,761
1916	16,692	Nil.	1,559,228	9,534	Nil.	1,280,032	26,226	Nil.	2,839,260
1917	26,838	Nil.	4,165,698	13,192	Nil.	2,585,724	40,030	Nil.	6,751,392
1918	15,626	Nil.	2,382,697	7,081	Nil.	2,182,497	22,707	Nil.	4,575,194
1919	12,669	Nil.	1,911,162	2,408	Nil.	395,107	15,077	Nil.	2,806,269
1920	20,852	Nil.	2,205,070	3,655	Nil.	1,283,694	24,507	Nil.	3,488,764
1921	19,151	Nil.	1,034,710	1,931	Nil.	512,862	21,082	Nil.	1,547,572
1922	17,196	Nil.	921,797	952	Nil.	419,497	18,148	Nil.	1,341,294

PRINCIPAL ARTICLES EXPORTED

Of Canadian Origin.—Flour, oats, hay, bran, feed, potatoes, live stock, beef, pork, fresh meat, condensed milk, machinery, lard, yeast cake, pig iron, roofing and cement.

Of United States Origin.—Flour, meal, oats, dried fruit, pork, beef, leather, oil, organs, soup, beans, rice, roofing, tobacco, sugar and machinery.

CANADA, THE WEST INDIES AND SOUTH AMERICA

Contract No. 9.

T. & C. File No. 28207.

Vote 170.—Canada and the West Indies or South America, or both, steam service between—

1922–23 ..... $ 340,666 66
1923–24 ..... 340,666 66

Contractors.—The Royal Mail Steam Packet Company, of London, England, (Canadian address: St. Paul Building, Halifax, N.S.) Freight and passenger agents: Pickford and Black, Halifax, N.S.)

Contract Dated.—April 1, 1922.—*Duration of Contract.*—April 1, 1922, to March 31, 1924.

Service and Ports of Call.—Commencing from St. John, N.B., sailing thence to Halifax, N.S., and sailing thence to Georgetown, British Guiana, every fourteen days:—Calling at the following islands: Bermuda, St. Kitts, Antigua, Montserrat, Dominica, St. Lucia, Barbados, St. Vincent, Grenada, and Trinidad, and returning from Georgetown to St. John, calling at all the aforesaid islands, in reversed order. This itinerary may be subject to any change which may be mutually agreed upon between the minister and the contractors.

Speed required.—11 knots.

Subsidy.—£70,000 ($340,666.66) per annum, based on payments of £2,692 6s. 2d. ($13,102.56) for each complete round voyage, payable on the last day of each month.

Canadian Trade Commissioners.—To be carried free.

Mails.—To be carried free.

Freight charges from St. John to Halifax.—The contractors are required, at their own expense, when so required by consignors, to pay the freight charges by rail from St. John to Halifax on butter, cheese, and fruit intended for shipment by the contractors' steamships.

Delay at Ports.—The contractors must make every reasonable effort to avoid undue delay at Canadian or West Indian ports.

Development of Trade.—The contractors must use their utmost endeavour to develop the cargo and passenger trade between Canada and the British West Indies by means of reasonable advertising and regular soliciation through agents.

Through rates of Freight.—The contractors must use their best endeavours to arrange through rates of freight between inland points in Canada and the various ports of call referred to in this contract in the British West Indies and Central and South America.

Transfer by connecting lines.—As the design of this agreement is to give regular fortnightly communication both ways to all the ports previously mentioned, arrangements must be made for the transport of freight and passengers on all voyages south bound and north bound by transfer to the lines of the contractors' steamers conducting the insular service from and to Trinidad, and at the rates obtaining for the direct service.

No discrimination.—No discrimination of any kind as regards freight and passenger rates may be made in favour of any merchant, shipper or importer in any one of the British colonies referred to herein, as against any other merchant shipper or importer in the same colony.

Through Bills of Lading.—Through bills of lading must be issued from any Canadian point of shipment to any port in Central or South America, which is a regular port of call for any of the steamships employed or controlled by the contractors on other services, and which make regular connections with the service herein contracted for.

DISTANCES

	Miles
St. John to Halifax	288
Halifax to Bermuda	764
Bermuda to St. Kitts	942
St. Kitts to Antigua	60
Antigua to Montserrat	35
Montserrat to Dominica	97
Dominica to St. Lucia	81
St. Lucia to St. Vincent	59
St. Vincent to Barbados	96
Barbados to Grenada	147
Grenada to Trinidad	96
Trinidad to Demerara	374
	3,039

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class.	2nd Class.	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							c.ft.		Kts			
Chignecto	400·5	47·2	31·1	2,990	4,744	5,567	41	60	90	4988	418	11	Belfast	1893	Steel
Chaleur	400·5	47·2	31·1	2,994	4,746	5,574	41	60	90	5288	418	11	Belfast	1893	Steel
Caraquet	400·5	47·3	31·1	2,975	4,889	5,129	40	72	80	5565	418	11	Belfast	1894	Steel
Chaudiere	370·0	45·9	25·0	2,499	4,019	4,726	50	64	76	900	584	12	Middleboro.	1899	Steel

TRAFFIC RETURNS

Calendar Year	No. of round trips run	Number of Passengers Carried			Tons of Freight Carried		Live Stock	Mails		Subsidy Paid
		1st Class	2nd Class	3rd Class	Tons Weight	Tons Measurement		Lock Bags	Tied Sacks	$ cts.
1914	26	1,080	465	1,742	52,320	90,398	48	705	1,627	330,897 33
1915	26	959	786	2,727	78,414	94,781	34	518	3,472	340,666 56
1916	26	1,459	461	3,948	100,883	127,631	31	1,690	3,146	340,666 66
1917	25	1,253	422	2,256	94,042	99,504	32	3,421	1,970	334,115 38
1918	16	1,344	389	1,064	70,691	72,370	86	2,710	1,255	209,640 96
1919	26	3,154	1,100	1,871	93,890	110,313	162	2,178	4,092	340,666 56
1920	26	3,007	1,045	1,866	69,837	110,921	107	2,522	3,583	340,666 56
1921	26	2,152	237	1,387	49,824	112,574	91	3,579	3,350	340,666 56
1922	26	In 738	186	439	7,019	63,381	1	1,098	1,636	
		Out 710	99	655	5,589	91,114	55	1,791	1,577	340,666 56
Total		1,448	285	1,094	12,608	154,495	56	2,889	3,213	

ORIGIN, QUANTITY AND VALUE OF CARGO EXPORTED FROM CANADA

(Including Live Stock)

Calendar Year	From	Canadian Origin			United States Origin			Total		
		Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value
				$			$			$
1914	St. John	1,557	15,130	234,008				1,557	15,120	234,008
	Halifax	2,951	75,254	2,384,256				2,951	75,254	2,384,256
Total		4,508	90,374	2,618,264	Nil.	Nil.	Nil.	4,508	90,374	2,618,264
1915	St. John	2,031	12,362	301,659				2,031	12,362	301,659
	Halifax	3,621	82,419	3,206,176				3,621	82,419	3,206,176
Total		5,652	94,781	3,507,835	Nil.	Nil.	Nil.	5,652	94,781	3,507,835
1916	St. John	1,781	15,899	425,664				1,781	15,899	425,664
	Halifax	2,812	96,907	4,272,628				2,812	96,907	4,272,628
Total		4,593	112,806	4,698,292	Nil.	Nil.	Nil.	4,593	112,806	4,698,292
1917	St. John	1,460	14,570	532,012				1,460	14,570	532,012
	Halifax	5,071	89,820	5,726,139				5,071	89,820	5,726,139
Total		6,531	104,390	6,258,151	Nil.	Nil.	Nil.	6,531	104,390	6,258,151
1918	St. John	3,789	36,113	3,065,587				3,789	36,113	3,065,587
	Halifax	2,295	36,257	3,194,007				2,295	36,257	3,194,007
Total		6,084	72,370	6,259,594	Nil.	Nil.	Nil.	6,084	72,370	6,259,594
1919	St. John	829	19,378	1,276,582				829	19,378	1,276,582
	Halifax	3,569	87,559	6,836,810				3,569	87,559	6,836,810
Total		4,398	106,937	8,113,392	Nil.	Nil.	Nil.	4,398	106,937	8,113,392
1920	St. John	1,320	20,894	1,477,800				1,320	20,894	1,477,800
	Halifax	6,640	84,436	8,312,749				6,640	84,436	8,312,749
Total		7,960	105,330	9,790,549	Nil.	Nil.	Nil.	7,960	105,330	9,790,549
1921	St. John	719	9,118	655,588				719	9,118	655,588
	Halifax	4,525	85,097	5,843,187				4,525	85,097	5,843,187
Total		5,244	94,215	6,498,775	Nil.	Nil.	Nil.	5,244	94,215	6,498,775
1922	St. John	809	5,760	361,747				80	5,740	361,747
	Halifax	4,780	85,374	4,836,799				4,780	85,374	4,836,799
Total		5,589	91,114	5,198,546	Nil.	Nil.	Nil.	5,589	91,114	5,198,546

Principal Articles Exported from Canada

All of Canadian Origin.—Fish, canned goods, flour, feed, meal, oilmeal, hay, oats, cheese, butter, eggs, apples, potatoes, split peas, vegetables, groceries, beef, live stock, mineral water, tea, soap, sulphate of ammonia, fertilizer, lumber, shingles, shooks, laths, furniture, chairs, brooms, brushes, stoves, trunks, rope, cordage, nails, paper, and biscuits.

CANADA AND SOUTH AFRICA

Contract No. 2.

T. & C. File No. 28313.

Vote 171.—Canada and South Africa, steam service between—

1922–23	$146,000
1923–24	146,000

Contractors.—Elder Dempster & Co., Ltd., 133 Board of Trade Building, Montreal, Que. (Head office: 4 St. Mary Axe., London, E.C., England.)

Contract dated.—August 8, 1922. *Duration of Contract.*—October 1, 1922, to March 31, 1923.

Service.—Monthly, during the first fifteen days of each month.

Ports of Call.—From Montreal, calling at Quebec, at the option of the contractors; and during the months of September, October and November at Halifax, and, at the option of the contractors, at other Canadian ports during the season of open navigation on the St. Lawrence; and, during closed navigation on the St. Lawrence, from St. John, calling at Halifax, and, at the option of the contractors, at other Canadian ports; proceeding direct to Cape Town and not less than two other South African ports.

Speed required.—10 knots.

Subsidy.—$146,000 per annum, payable quarterly.

Coaling.—Steamers may call at any Canadian port solely for the purpose of coaling.

Government Railway Clause.—Included.

Cold Storage.—There must be accommodation for not less than 200 tons of cargo in cold storage on each ship. The contractors must provide such further cold storage accommodation as may be needed from time to time.

Additional Vessels.—The contractors agree to provide additional vessels when necessary to meet the requirements of the trade offered.

Mails.—To be carried free.

Canadian Trade Commissioners.—To be carried free.

Supervision of handling.—The handling, loading, stowing and unloading of any fruit or perishable products carried by the said vessels shall be subject to and under the supervision of any cargo inspector or other officer appointed for that purpose, should the Minister of Agriculture for Canada deem it advisable.

Exemption from calling at Canadian Ports.—If sufficient cargo is not forthcoming from any of the ports of call in Canada, the minister may relieve the contractors from the obligation of calling at such ports.

DISTANCES

	Miles
Montreal to Cape Town	7,338
" Port Elizabeth	7,778
" East London	7,909
" Durban	8,162
St. John to Cape Town	6,978
" Port Elizabeth	7,413
" East London	7,549
" Durban	7,802

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Acc.	Refrigerator Space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity					At	In	Of
	Ft.	Ft.	Ft					Cu. ft.		Kts			
Kaduna	360·0	52·0	26·2	2,308	4,455	8,100	12	10,000	339	10	Middlesbro	1910	Steel.
Kwarra	360·0	52·0	26·1	2,304	4,441	8,100	12	10,000	428	10	Middlesbro	1910	Steel.
Bengnela	425·5	53·0	29·2	3,534	5,520	8,920	4	10,390	556	12	Newcastle-on-Tyne	1910	Steel.
New Georgia	412·6	55·8	34·4	4,044	6,566	10,660	Nil.	Nil.	517	11	Belfast	1918	Steel.
New Mexico	412·6	55·8	34·4	4,044	6,566	10,660	Nil.	Nil.	517	11	Belfast	1919	Steel.
NewBrighton	412·6	55·8	34·4	4,023	6,538	10,550	Nil.	Nil.	....	11	Belfast	1920	Steel.
Jekri	385·3	51·2	25·5	4,278	5,875	9,020	Nil.	Nil.	440	11	Japan	1917	Steel.
NewBrooklyn	412·6	55·8	34·4	4,044	6,566	10,660	Nil.	Nil.	517	11	Belfast	1920	Steel.
Fantee	399·5	53·0	32·8	3,527	5,663	9,000	Nil.	Nil.	517	11	Newcastle	1920	Steel.
Bereby	460·2	52·3	28·5	3,197	5,248	8,130	Nil.	Nil.	369	11	Hartlepool	1919	Steel
Calgary	440·1	59·2	31·1	4,486	7,206	10,660	12	17,500	....	12½	Clydebank	1921	Steel.

TRAFFIC RETURNS (Outward voyages)

No cargo is carried inward

Calendar Year	No. of Trips run	Number of Passengers Carried	Tons of Freight Carried		Live Stock	Mails	Subsidy Paid
			Weight	Measure			$ cts.
1914	12	3	45,296	33,563	235	Nil.	146,000 00
1915	12	1	52,543	37,166	Nil.	Nil.	145,999 92
1916	10	Nil.	30,797	38,630	Nil.	Nil.	121,666 68
1917	9	Nil.	23,140	36,653	Nil.	Nil.	109,500 02
1918	3	Nil.	9,972	9,054	Nil.	Nil.	36,499 98
1919	11	Nil.	22,503	49,038	Nil.	Nil.	133,833 26
1920	12	Nil.	35,956	56,970	Nil.	Nil.	146,000 00
1921	10	Nil.	18,243	20,132	Nil.	Nil.	121,666 60
1922	11	Nil.	23,206	27,016	Nil.	Nil.	133,833 26

ORIGIN, QUANTITY AND VALUE OF CARGO EXPORTED FROM CANADA

Calendar Year	Canadian Origin			United States Origin			Total		
	Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value
			$			$			$
1914	42,741	22,488	3,236,733	2,555	11,075	948,339	45,296	33,563	4,185,072
1915	46,981	23,589	3,889,139	5,562	13,577	1,331,441	52,543	37,166	5,220,580
1916	28,465	24,600	3,350,296	2,332	14,030	1,430,772	30,797	38,630	4,781,068
1917	20,404	24,209	3,644,333	2,736	12,444	1,390,856	23,140	36,653	5,035,189
1918	9,889	8,630	2,714,870	83	424	74,670	9,972	9,054	2,789,540
1919	22,165	36,509	8,348,508	338	12,529	2,237,672	22,503	49,038	10,585,580
1920	34,387	34,259	8,274,449	1,569	22,711	3,192,026	35,956	56,970	11,466,475
1921	16,962	14,395	4,082,959	1,281	5,737	677,720	18,243	20,132	4,760,679
1922	22,217	22,777	4,108,142	989	4,239	449,811	23,206	27,016	4,557,953

Principal Articles Exported

Of Canadian Origin.—Agricultural implements, calcium carbide, automobiles, paper, lumber, cereal foods, eggfillers, chairs, woodenware, cotton duck, Beaver board, nails, iron and steel, malt, horseshoes, condensed milk, locomotives, cardboard, shovels, cement, wire, pipe, flour and wheat.

Of United States Origin.—Automobiles, mining machinery, fruit jars, canned meats, washing powder, ammonia, agricultural implements and tractors.

PACIFIC OCEAN SERVICES

CANADA AND NEW ZEALAND

Contract No. 27.

T. & C. File No. 28366.

Vote 172.—Canada and New Zealand, on the Pacific Ocean, steam service between—

1922–23	$130,509
1923–24	130,509

Contractors.—The Union Steamship Co., of New Zealand, Ltd. (Canadian address: Canadian Australasian Royal Mail Line, 739 Hastings Street West, Vancouver, B.C.)

Contract dated.—June 15, 1922. *Duration of Contract.*—August 1, 1922, to March 31, 1924.

Service.—Sailing at alternate intervals of approximately four weeks and five weeks, making 20 round trips during the period covered by the contract.

Ports of Call.—Vancouver, B.C.; Victoria, B.C.; Honolulu, in the Sandwich islands; Suva, in the Fiji islands; and Auckland, N.Z. At the contractor's option, each voyage from Canada to New Zealand may be extended to a port or ports in Australia. The Australian port of call is Sydney. The call at Suva is conditional upon the Government of Fiji also continuing their contract for a like period and on the same terms as heretofore, and also upon their maintaining the same charges for light and other dues levied on ships employed in the service.

Speed required.—Duration of voyage is not to exceed 20 days, including one day's detention at Honolulu.

Subsidy.—$130,509 per annum (payable in approximately monthly instalments.)

Provided that the contractors shall be entitled to receive such subsidy as the Governments of New Zealand and Fiji may pay towards the service; and also the Government of Australia, should the service be extended to that Commonwealth.

Deductions from Subsidy.—£30 are to be deducted from the amount of subsidy payable on each claim for every complete period of twenty-four hours by which the time occupied in conveyance of the mails between Auckland and Vancouver has exceeded twenty days.

Preference to Canadian Shippers.—No discrimination as regards freight or passenger rates is to be made against Canadian ports, railways, merchants or shippers. Canadian merchants and shippers are to have preference at all times for the carriage of their goods over other merchants and shippers, as far as regards the Canadian connection.

Freight and Passenger Rates.—Freight rates from Vancouver or Victoria to New Zealand shall not exceed the current rates charged on similar cargo to New Zealand ports by Union S.S. Co. of N.Z. Limited Mail Steamers from San Francisco.

Passenger rates from Vancouver or Victoria to Auckland shall not exceed passenger rates during the same period from Auckland to Victoria or Vancouver, and return fares from Canadian ports to New Zealand ports shall not exceed return fares in the opposite direction during the same period.

No discrimination shall be made in any manner directly or indirectly against any Canadian port or ports, railway, merchants or shippers, and Canadian merchants and shippers shall at all times have preference for the carriage of their goods over other merchants and shippers, as far as regards the Canadian connection.

The Canadian National Railways shall receive in all respects the same treatment as regards agency representation, advertising facilities, and facilities for handling and booking freight and passengers, as is accorded by the contractors to any other railway; and shall have equal opportunity with any other railway for securing steamship accommodation for its patrons, and for ticketing passengers to, from and across Canada.

In regard to freight traffic, equal rates and equal facilities for obtaining cargo space and through bills of lading shall be granted to all Canadian railways.

Mails.—To be carried free.

Canadian Trade Commissioners.—To be carried free.

DISTANCES

	Miles
Vancouver to Victoria	85
Victoria to Honolulu	2,342
Honolulu to Suva, Fiji	2,799
Suva to Auckland	1,140
Total	6,366

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator Space	N.H.P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class	2nd Class	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							Cu. ft.					
Makura	480	58	35	4,920	8,200	3,000	270	114	72	14,985	2,035	16½	Glasgow	1908	Steel
Niagara	542	66	37·6	7,581	13,444	3,800	289	210	276	63,200	*12,500	17½	Clydebank	1913	Steel

* Indicated Horse Power.

TRAFFIC RETURNS

Calendar Year	Round Trips	Passengers Carried	Freight Carried	Live Stock	Mails		Subsidy Paid
		Number	Tons		Lock bags	Tied sacks	$ cts.
1914	12½	5,886	42,615	76	15,338	907	173,566 36
1915	13	4,366	48,827	8	20,845	936	180,509 00
1916	13	4,311	59,597	Nil.	22,281	753	180,509 00
1917	13	3,870	55,606	20	30,659	773	180,509 00
1918	12	6,592	63,205	Nil.	72,395	703	166,623 72
1919	11	9,521	55,723	Nil.	35,364	861	152,738 41
1920	11	8,717	43,484	Nil.	29,265	1,236	137,353 73
1921	9½	5,862	27,997	Nil.	20,951	1,291	88,679 09
1922	12	In 3,462	12,101	Nil.	10,262	213	
		Out 3,549	34,378	Nil.	19,553	1,635	130,508 93
Total		7,011	46,479	Nil.	29,815	1,848	

ORIGIN, QUANTITY AND VALUE OF FREIGHT EXPORTED FROM CANADA

To	Canadian Origin			United States Origin			Total		
	Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value	Tons Weight	Tons Measurement	Value
			$			$			$
1914 Auckland	967	2,434	285,999	861	1,054	535,646	1,828	3,488	831,645
Suva	138	3,901	128,844	87	160	42,276	225	4,061	171,120
Honolulu	136	36	25,748	Nil.	Nil.	Nil.	136	36	25,748
Sydney	2,377	8,737	585,927	2,916	1,421	1,595,831	5,293	10,158	2,181,758
Total	3,618	15,108	1,026,518	3,864	2,635	2,173,753	7,482	17,743	3,200,271
1915 Auckland	4,482	2,450	509,051	614	1,356	433,939	5,096	3,806	942,990
Suva	1,045	2,861	176,329	142	217	44,213	1,187	3,078	220,542
Honolulu	2	2	923	—	—	—	2	2	923
Sydney	2,765	5,700	927,085	1,722	4,500	1,483,945	4,487	10,200	2,411,030
Total	8,294	110,513	1,613,388	2,478	6,073	1,962,097	10,772	17,086	3,575,485
1916 Auckland	3,084	4,604	645,970	409	3,405	511,380	3,493	8,009	1,157,350
Suva	910	1,850	160,285	79	687	88,275	989	2,537	248,560
Honolulu	1	36	3,602	—	—	—	1	36	3,602
Sydney	3,525	9,533	1,380,367	580	8,843	1,707,840	4,105	18,376	3,088,207
Total	7,520	16,023	2,190,224	1,068	12,935	2,307,495	8,588	28,958	4,497,719
1917 Auckland	4,813	6,211	1,099,650	77	2,696	411,012	4,890	8,907	1,510,662
Suva	54	1,353	108,806	1	396	64,233	55	1,749	173,039
Honolulu	—	38	3,527	—	—	—	—	38	3,527
Sydney	2,809	8,419	1,301,674	—	5,091	1,121,660	2,809	13,510	2,423,334
Total	7,676	16,021	2,513,657	78	8,183	1,596,905	7,754	24,204	4,110,562
1918 Auckland	566	20,400	2,038,144	58	2,448	850,256	624	22,848	2,888,400
Suva	—	1,457	225,363	9	212	68,792	9	1,669	294,155
Honolulu	—	105	8,991	—	—	—	—	105	8,991
Sydney	775	5,593	1,641,174	72	4,367	1,696,129	847	9,960	3,337,303
Total	1,341	27,555	3,913,672	139	7,027	2,615,177	1,480	34,582	6,528,849
1919 Auckland	284	21,922	2,161,146	58	2,030	710,228	342	23,952	2,871,374
Suva	.....	838	141,296	7	226	61,950	7	1,064	203,246
Honolulu	1	45	6,700	—	11	2,299	1	56	8,999
Sydney	110	4,619	1,645,625	192	3,869	1,572,273	302	8,488	3,217,898
Total	395	27,424	3,954,767	257	6,136	2,346,750	652	33,560	6,301,517
1920 Auckland	2,475	14,161	1,895,106	201	2,725	573,066	2,676	16,886	2,468,172
Suva	431	1,262	225,136	3	327	69,454	434	1,589	294,590
Honolulu	21	15	2,625	—	18	9,319	21	33	11,944
Sydney	809	5,277	1,255,756	804	2,516	1,274,937	1,613	7,793	2,530,693
Total	3,736	20,715	3,378,623	1,008	5,586	1,926,776	4,744	26,301	5,305,399
1921 Auckland	—	7,301	1,096,220	—	738	302,841	—	8,039	1,399,061
Suva	113	1,250	134,604	—	187	37,992	113	1,437	172,596
Honolulu	52	674	47,137	—	19	4,380	52	693	51,517
Sydney	18	8,117	1,063,932	—	1,471	980,332	18	9,588	2,044,264
Total	183	17,342	2,341,893	—	2,415	1,325,545	183	19,757	3,667,438
1922 Auckland	46	7,830	1,047,467	—	1,154	341,876	46	8,984	1,389,343
Suva	11	1,850	113,126	22	119	34,279	33	1,969	147,405
Honolulu	61	180	8,204	—	17	2,158	61	197	10,362
Sydney	64	14,671	1,827,652	38	8,315	1,946,139	102	22,986	3,773,791
Total	182	24,531	2,996,449	60	9,605	2,324,452	242	34,136	5,320,901

PRINCIPAL ARTICLES EXPORTED

Of Canadian Origin.—Canned salmon, fresh fruit (in cold storage), potatoes, onions, leather and rubber goods, lumber, codfish, whisky, bicycles and parts thereof, chairs, corsets, suspenders, sewing machines, hardware and machinery.

Of United States Origin.—Drugs, sewing machines, automobiles, gas engines and other machinery, soap and scouring powders, leather and rubber goods, cash registers and scales, cereal foods, telephone material, adding machines, vacuum cleaners, motor cycles, and corsets.

PRINCE RUPERT, B.C., AND QUEEN CHARLOTTE ISLANDS

Contract No. 61.

T. & C. File No. 28008.

Vote 173.—Prince Rupert, B.C., and Queen Charlotte Islands—steam service between—

1922–23	$ 21,000
1923–24	21,000

Contractors.—The Grand Trunk Pacific Coast S. S. Co., Ltd.

Date of Contract.—March 8, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Services and Ports of Call.—Fortnightly trips from Prince Rupert, B.C., calling each way at Refuge Bay (on Porcher Island), and Masset, Port Clements, Sandspit, Skidegate, Queen Charlotte, Jedway, Thurston Harbour, and Lockeport, and calling once each month at Cumshewa Inlet, it being understood that the call at Refuge Bay shall be made by a subsidiary launch service provided by the contractors; calling at the option of the company when deemed necessary at Ketchikan, Alaska.

Speed Required.—Not stated.

Subsidy.—$21,000 per annum, payable quarterly in July, October, January and April.

Mails.—To be carried free.

Government wharves.—Steamer must call whenever possible.

DISTANCES

	Miles.	
Prince Rupert to Masset	85	
Masset to Port Clements	26	
Port Clements to Masset	26	
Masset to Prince Rupert	85	
		222
Prince Rupert to Refuge Bay	20	
Refuge Bay to Sandspit	77	
Sandspit to Skidegate	5	
Skidegate to Queen Charlotte City	2	
Queen Charlotte City to Ikeda	100	
Ikeda to Jedway	10	
Jedway to Lockeport	43	
Lockeport to Prince Rupert	128	
		385
		607

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Feet	ft.	ft.						Knots			
Prince Albert	232	30	14·1	587	1,015	.....	.....	170	.....	Hull.....	1892	Steel
Prince John	185·3	29·6	10·9	540	905	.....	.....	103	.....	Bowling.....	1910	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round trips run	Passengers Carried	Freight		Live Stock	Mails		Subsidy Paid
			Tons Weight	Tons Measurement		Lock Bags	Tied Sacks	
1914	35	3,175	2,695	*11 M ft.	46	1,780	1,570	7,000 03
1915	13	686	1,380	465	117	1,321	Nil	7,333 30
1916	25	1,584	5,264	1,586	116	2,116	Nil	6,000 00
1917	24	2,217	6,553	Nil	5	1,951	209	19,750 00
1918	34	11,157	17,395	Nil	35	4,231	551	21,000 00
1919	39	3,291	5,948	69 M ft.	24	3,335	33	21,000 00
1920	38	5,566	5,158	260	Nil	3,246	161	21,000 00
1921	26	In 803	2,408	Nil	Nil	849	Nil	
		Out 961	1,241	Nil	2	3,128	31	21,000 00
Total		1,764	3,649	Nil	2	3,977	31	
1922	26	In 1,333	5,541	Nil	14	1,045	Nil	21,000 00
		Out 1,024	3,952	Nil	Nil	3,193	63	
		Total 2,357	9,493	Nil	14	4,238	63	

* Lumber.

VICTORIA AND SAN FRANCISCO

Contract No. 10.

T. & C. File No. 27977.

Vote 174.—Victoria and San Francisco.—Steam service between—

1922–23 ..... $3,000
1923–24 3,000

Contractors.—The Pacific Steamship Co. of Seattle, Wash., U.S.A. (Canadian address 1117 Wharf street, Victoria, B.C.).

Date of Contract.—February 27, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Weekly.

Ports of Call.—Victoria, B.C., and San Francisco, U.S.A.

Subsidy.—$3,000 per annum, payable in quarterly instalments on the first days of July, October, January and April.

Speed Required.—Not stated.

Mails.—To be carried free.

Canadian Trade Commissioners.—To be carried free.

Distance.—Victoria to San Francisco, 750 miles.

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class	2nd Class	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							C.ft		Kts			
President	391	48·0	19·7	2,546	5,218	2,800	340	..	179	....	601	15	Camden, N.J. ..	1906	Steel
Ruth Alexander	455	55·9	43	4,935	8,226	4,000	284	..	138	..		14	Germany.	....	Steel
Dorothy Alexander	417	49	37	2,546	5,453	2,800	374	..	294		601	15	U.S.A.	1906	Steel
Admiral Schley	291	36	23	1,336	2,104	1,300	102	..	42	....	..	11	U.S.A.	1898	Steel
Admiral Dewey	291	36	23	1,336	2,104	1,300	102	..	42	....	..	11	U.S.A.	1898	Steel

NOTE.—A steamship service between Victoria and San Francisco, provided by the Dominion Government is required under the terms of the agreement by which British Columbia entered Confederation.

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried		Tons of Freight Carried		Live Stock Carried	Mails Carried		Subsidy Paid
				Weight	Measure		Lock Bags	Tied Sacks	
									$ cts.
1914	54		3,630	3,534	4,368	Nil.	Nil.	Nil.	2,971 15
1915	52		4,307	1,955	2,435	Nil.	Nil.	Nil.	3,060 00
1916	47½		3,249	3,702	2,514	Nil.	Nil.	Nil.	2,769 23
1917	52		6,703	4,815	Nil.	Nil.	Nil.	Nil.	3,000 00
1918	43½		3,864	2,949	Nil.	Nil.	Nil.	Nil.	2,509 77
1919	36		4,296	2,011	Nil.	Nil.	Nil.	Nil.	2,076 95
1920	49½		5,215	3,844	Nil.	Nil.	Nil.	Nil.	2,826 90
1921	41½		3,912	3,144	Nil.	Nil.	Nil.	Nil.	2,394 19
1922	62	In	1,714	1,942	Nil.	Nil.	Nil.	Nil.	
		Out	4,068	785	Nil.	Nil.	Nil.	Nil.	2,625 00
Total			5,782	2,727	Nil.	Nil.	Nil.	Nil.	

ORIGIN, QUANTITY AND VALUE OF CARGO EXPORTED FROM CANADA

Calendar Year	Canadian Origin			United States Origin			Total		
	Tons Weight	Tons Meas't	Value	Tons Weight	Tons Meas't	Value	Tons Weight	Tons Meas't	Value
			$			$			$
1914	95	873	128,307	Nil.	87	10,911	95	960	139,218
1915	175	306	37,736	6	27	10,514	181	333	48,244
1916	212	370	51,323	21	14	4,901	233	384	56,224
1917	234	Nil.	55,941	19	Nil.	11,438	253	Nil.	67,379
1918	67	Nil.	28,948	8	Nil.	4,475	75	Nil.	33,423
1919	69	Nil.	28,911	9	Nil.	11,360	78	Nil.	40,271
1920	197	Nil.	109,261	46	Nil.	31,760	243	Nil.	140,961
1921	314	Nil.	82,975	2	Nil.	735	316	Nil.	79,710
1922	777	Nil.	106,323	8	Nil.	8,878	785	Nil.	115,201

PRINCIPAL ARTICLES EXPORTED

Of Canadian Origin.—Household goods, automobiles, building paper, holly.

Of United States Origin.—Empty cylinders, automobiles, machinery, raisins and furs.

VICTORIA, VANCOUVER, WAYPORTS AND SKAGWAY

Contract No. 28.

T. & C. File No. 28246.

Vote 175.—Victoria, Vancouver, Wayports and Skagway, steam service between—

1922–23 ..... $ 25,000
1923–24 25,000

Contractor.—Canadian Pacific Railway Co., Montreal, Que.

Contract Dated.—May 8, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Four complete round trips each month from June to October, inclusive; three complete round trips each month from March to May, inclusive; and two complete round trips each month from November to February, inclusive.

Ports of call.—Victoria, Vancouver, Prince Rupert, Ketchikan, Juneau and Skagway. Steamers are permitted to call at the United States ports mentioned in the preceding paragraph on outward trips only.

Subsidy.—$25,000 per annum, payable in July, October, January and April.

Mails.—To be carried free.

DISTANCES

	Knots
Victoria to Vancouver	73
Vancouver to Port Essington	472
Port Essington to Prince Rupert	27
Prince Rupert to Port Simpson	36
Port Simpson to Ketchikan	66
Ketchikan to Skagway	307
Total	981

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class	2nd Class	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							c.ft.		Kts			
Princess Alice	289·0	46·0	17·0	1,903	3,099	500	500	Nil.	Nil.	Nil.	610	17½	Newcastle-on-Tyne.	1911	Steel
Princess Mary	248·4	40·1	14·0	1,346	2,155	900	500	Nil.	Nil.	Nil.	195	14	Paisley	1910	Steel
Princess Louise	317	48	18·6	2,448	4,031	1,000	500	Nil.	Nil.	Nil.	364	17¾	North Vancouver.	1921	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried			Tons of Freight Carried		Live Stock	Mails		Subsidies Paid
		1st Class	2nd Class	3rd Class	Tons Weight	Tons Meas't		Lock Bags	Tied Sacks	$ cts.
1913	40	12,292	1,461	584	6,409	1,372	482	3,460	9,118	12,500 00
1914	40	12,788	827	811	11,483	349	925	6,665	6,377	12,500 00
1915	40	6,020	601	249	10,818	597	1,521	5,067	7,703	12,500 00
1916	42	7,638	440	199	13,506	180	1,239	3,361	14,207	12,500 00
1917	40	7,616	528	322	13,909	Nil.	779	4,240	9,347	12,500 00
1918	32½	6,308	810	112	16,890	Nil.	158	4,496	8,195	11,263 03
1919	34	9,430	699	493	8,583	Nil.	260	6,517	7,649	21,875 00
1920	35	10,175	705	472	9,582	Nil.	101	4,144	9,380	23,593 75
1921	37 In	5,383	304	334	3,106	Nil.	2	1,586	3,186	
	Out	4,484	358	320	5,563	Nil.	62	2,474	11,748	
	Total...	9,867	662	654	8,669	Nil.	64	4,060	14,934	24,218 75
1922	40 In	6,314	387	371	2,847	Nil.	10	2,094	2,195	
	Out	5,523	157	131	6,841	Nil.	123	3,986	10,013	25,000 00
	Total....	11,837	544	502	9,688	Nil.	133	6,080	12,208	

VICTORIA AND WEST COAST VANCOUVER ISLAND

Contract No. 63.

T. & C. File No. 28235.

Vote 176.—Victoria and West Coast Vancouver Island.—Steam service between—

1922–23.....$ 15,000
1923–24..... 15,000

Contractors.—Canadian Pacific Railway Company of Montreal, Que.

Date of Contract.—May 4, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Three complete round trips each month.

Ports of Call.—Victoria, Port Renfrew, Carmanah, Cla-oose, Bamfield, New Alberni, Uchucklesit, Seehart, Ucluelet, Clayoquot, Tofino, Christie School, Ahousaht, Hesquiot, Nootka, Whaling Station, Kyuquot, Quatsino, and Port Alice; and if sufficient business offers at other intermediate accessible ports.

Speed Required.—Not stated.

Subsidy.—$15,000 per annum, payable in June, September, December and March.

Mails.—To be carried free.

DISTANCES

	Knots
Victoria to Port Renfrew	54
Port Renfrew to Carmanah	15
Carmanah to Cla-oose	5
Cla-oose to Bamfield	25
Bamfield to New Alberni	34
New Alberni to Sechart	34
Sechart to Ucluelet	12
Ucluelet to Clayoquot	26
Clayoquot to Christie's School	3
Christie's School to Ahousaht	9
Ahousaht to Hesquoit	36
Hesquoit to Friendly Cove	25
Friendly Cove to Whaling Station	68
Whaling Station to Kyuquot	11
Kyuquot to Winter Harbour	45
Winter Harbour to Quatsino	22
Quatsino to Holberg	23
Total	447

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class	2nd Class	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							C.ft					
Princess Maquinna.	232	38	17	978	1,777	800	500	Nil.	Nil.	Nil.	238	12	Victoria, B.C.	1913	Steel
Princess Mary.	248	40	16	1,345	2,155	900	500	Nil.	Nil.	Nil.	388	14	Govan.....	1911	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Passengers Carried			Tons of Freight Carried		Live Stock	Mails		Subsidy Paid
		1st Class	2nd Class	3rd Class	Tons Weight	Tons Meas.		Lock Bags.	Tied Sacks	
										$ cts.
1914	43	4,123	2,469	615	6,806	1,739	62	2,479	1,101	5,000 00
1915	42	2,984	916	605	7,442	5,382	40	2,936	898	5,000 00
1916	42	3,275	1,343	Nil.	9,756	Nil.	20	2,321	1,817	5,000 00
1917	42	5,292	2,169	Nil.	11,636	Nil.	105	4,353	174	5,000 00
1918	36	7,168	1,516	438	15,930	Nil.	151	1,302	3,936	4,374 94
1919	36½	5,733	1,525	Nil.	15,047	Nil.	207	3,335	1,277	4,375 00
1920	36	6,980	1,364	Nil.	21,050	Nil.	248	3,979	1,229	12,500 00
1921	36	5,542	1,323	38	20,507	Nil.	40	4,777	968	15,000 00
1922	36 In	2,633	429	Nil.	12,633	Nil.	12	709	531	15,000 00
	Out	2,600	488	Nil.	7,513	Nil.	111	1,519	3,930	
	Total	5,233	917	Nil.	20,147	Nil.	123	2,228	4,461	

VANCOUVER AND NORTHERN BRITISH COLUMBIA PORTS

Contract No. 18.

T. & C. File No. 28231.

Vote 177.—Vancouver and Northern British Columbia ports, steam service between—

1922-23	$24,800
1923-24	24,800

Contractors.—The Union Steamship Company of British Columbia, Ltd., Vancouver, B.C.

Date of Contract.—May 2, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—Regular sailings throughout the year from Vancouver to Anyox (Granby Bay), on Observatory Inlet, making:—

(*a*) Two calls each way each week at Campbell River, Alert Bay, Port Hardy and Quathiasca Cove.

(*b*) One call each way each week at Sointula (including mails for Suquash), Beaver Cove, Namu, Bella Bella, Swanson Bay, Prince Rupert, Port Simpson, Ocean Falls, and Anyox.

(*c*) During the summer season of six months, one call each week at Shushartie Bay, Wadham's, Schooner Passage, Rivers Inlet, Bella Coola, China Hat, Butedale, Hartley Bay, Lowe Inlet, Claxton, Port Essington, Oceanic, Kumeon, Arrandale, Kincolith, Mill Bay, Surf Inlet, Naas Harbour (Mill Bay and Naas Harbour calls to be made monthly alternately during the six winter months), and Alice Arm; and calling at the aforesaid ports three times per month during the winter season of six months.

(*d*) One call one way every two weeks during summer and every four weeks during winter at Margaret Bay (Smith's Inlet).

(*e*) During the summer season one call one way every two weeks at Kimsquit.

(*f*) The contractors will arrange with the Post Office Department to contribute half the cost of a semi-monthly mail service to Kitimat, such half cost not to exceed $50 a month.

Under the present service to Anyox by the steamer making that place the terminal, one call per week suffices.

Speed required.—Not stated.

Subsidy.—$24,800 per annum, payable quarterly in July, October, January and April. (In addition to this, $8,200 per annum is paid by the Post Office Department.)

Mails.—To be carried free. The contractors further agree to carry the mails to and from all ports at which they call, whether such call be stipulated in the agreement or not.

Government Wharves.—Steamers must call whenever possible.

DISTANCES

	Miles		Miles
Vancouver to Campbell River	101	Ocean Falls to Bella Bella	28
Campbell River to Quathiasca Cove	2	Bella Bella to China Hat	39
Quathiasca Cove to Alert Bay	81	China Hat to Swanson Bay	24
Alert Bay to Sointula	5	Swanson Bay to Butedale	13
Sointula to Suquash	9	Butedale to Hartley Bay	28
Suquash to Port Hardy	12	Hartley Bay to Kitimat	40
Port Hardy to Shushartie Bay	19	Hartley Bay to Lowe Inlet	21
Shushartie Bay to Takush Harbour	39	Lowe Inlet to Claxton	41
Takush Harbour to Smith's Inlet	12	Claxton to Port Essington	9
Smith's Inlet to Wadham's	26	Port Essington to Inverness	12
Wadham's to Rivers Inlet Cannery	14	Inverness to Oceanic	7
Rivers Inlet Cannery to Schooner Passage	13	Oceanic to Prince Rupert	14
Schooner Passage to Safety Cove	15	Prince Rupert to Port Simpson	34
Safety Cove to Namu	22	Port Simpson to Arrandale	32
Namu Cove to Bella Coola	59	Arrandale to Kincolith	2
Bella Coola to Kimsquit	53	Kincolith to Mill Bay	5
Kimsquit to Ocean Falls	57	Mill Bay to Anyox	33
			921

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity	1st Class	2nd Class	3rd Class				At	In	Of
	Ft.	Ft.	Ft.							C.ft		Kts.			
Chelohsin	175·5	35·1	15·7	597	1,133	479	100	91	Nil.	Nil.	131	13½	Dublin	1911	Steel
Venture	180·4	32·2	17·0	880	1,011	560	100	84	Nil.	Nil.	171	12	Glasgow	1910	Steel
Coquitlam	120·0	22·2	9·6	165	256	357	Nil.	Nil.	Nil.	Nil.	28	7½	Vancouver	1892	Steel
Camosun	192·0	35·2	17·9	753	1,369	713	100	103	Nil.	Nil.	224	11	Paisley	1905	Steel
Cowichan	156·1	32·0	13·5	520	961	565	165	Nil.	Nil.	Nil.	151	11	Ayr	1908	Steel
Chilkoot	170·6	27·6	10·5	219	557	750	Nil.	Nil.	Nil.	Nil.	81	9	Bowling	1903	Steel
Chilliwack	172·6	30·2	12·9	410	756	800	21	Nil.	Nil.	Nil.	95	10	N. Vancouver	1920	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips	Passengers Carried	Tons of Freight Carried		Live Stock	Mails		Subsidy Paid
			Weight	Measurement		Lock Bags	Tied Sacks	
								$
1914	209	21,167	31,291	10,600	518	17,256	Nil.	16,800
1915	189	15,126	30,627	8,541	602	13,831	Nil.	16,800
1916	241	21,424	34,550	14,738	362	16,964	Nil.	16,800
1917	236	23,453	31,011	13,511	309	19,526	Nil.	16,800
1918	268	30,454	40,116	16,891	230	20,997	100	16,800
1919	218	27,309	31,474	12,169	165	22,103	Nil.	16,800
1920	234	32,477	20,216	14,956	242	26,872	Nil.	22,800
1921	237	23,619	22,308	12,569	127	29,516	Nil.	24,800
1922	244	In 8,465	12,391	2,473	37	11,201	Nil.	
		Out 15,938	10,977	10,763	88	19,493	Nil.	24,800
	Total	24,403	24,368	13,236	125	30,694	Nil.	

VANCOUVER AND PORTS ON HOWE SOUND

Contract No. 78.

T. & C. File No. 28365.

Vote 178.—Vancouver and ports on Howe Sound, steam service between—

1922-23	$5,000
1923-24	5,000

Contractor.—The Howe Sound Navigation Co., Ltd., of Vancouver, B.C.

Date of Contract.—June 9, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—

(*a*) A regular daily service from May 15 to September 15 between Vancouver and Gibson's Landing, Hopkin's Landing, New Brighton, Port Mellon, Grantham, and Seaside Park.

(*b*) A regular service three times each week from April 1 to May 14 and from September 16 to March 31 and more frequently if business should warrant it, between Vancouver and Gibson's Landing, Hopkin's Landing, Grantham, and New Brighton.

(*c*) A regular service twice a week throughout the year between Vancouver and Hope Point (or Long Bay), West Bay, Grace Harbour, Elkin's Point, McNab Creek, Douglas, North Bay and Halkett Bay.

(*d*) A regular service twice a week from October 1 to March 31 between Vancouver, Port Mellon and Seaside Park, with more frequent trips if business should warrant it.

Speed required.—Not stated.

Subsidy.—$5,000 per annum, payable quarterly.

Mails.—To be carried free. Mails to be received and delivered at ship's side.

DISTANCES

	Miles
Vancouver to Hope Point	22
Hope Point to West Bay	5
West Bay to Gibson's Landing	8
Gibson's Landing to Hopkins' Landing	4
Hopkin's Landing to Smith's Landing	2
Smith's Landing to New Brighton	3
New Brighton to Port Mellon	10
Port Mellon to Seaside Park	1
Seaside Park to McNab's Creek	6
McNab's Creek to Elkin's Point	2
Elkin's Point to Douglas Bay	4
Douglas Bay to North Bay	4
North Bay to Halkett	4
Halkett to Vancouver	22
Total	97
Vancouver to Gibson's Landing	24

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Refrigerator space	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Britannia	104·8	22·4	6·09	221·6	325·9	60	200	33	10	Vancouver, B.C.	1902	Wood
Lady Evelyn	189	26·1	9·05	338	589	100	481	150	16	Tranmore	1905	Steel

TRAFFIC RETURNS

Period	No. of Round Trips run	Number of Passengers Carried		Tons of Freight Carried	Live Stock	Mails		Subsidy Paid
						Lock Bags	Tied Sacks	
Aug. 1 to Dec. 31, 1919	114	5,378		531	48	309	464	1,744 88
1920	264	18,603		1,955	62	2,033	2,254	5,000 00
1921	238	16,013		1,635	61	1,692	2,399	4,711 53
1922	219	7,032	In	117	16	1,022	462	
		7,851	Out	1,450	41	1,057	2,507	4,967 95
	Total..	14,883		1,567	57	2,079	2,969	

LOCAL SERVICES

BADDECK AND IONA

Contract No. 25.

T. & C. File 28128.

Vote 179.—Baddeck and Iona, steam service between—

1922-23	$9,000
1923-24	9,000

Contractors.—The Baddeck Steamship Company, Ltd., of Baddeck, N.S.

Contract dated.—March 31, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Two full round trips daily, during open navigation.

Ports of Call.—Baddeck, Iona and McKay's Point; calling at Kempt Head on the western end of Boularderie Island on trips from Baddeck to Iona; such calls to be made only on those days on which the subsidized steamer from Sydney to Whycocomagh makes her westbound trip from Sydney to Whycocomagh; and calling at Grand Narrows whenever there is a reasonable amount of freight to take on or put off at that place.

(*a*) Provided, however, that if weather conditions prevent the steamer making a landing at Iona at any time, she shall, if possible, proceed to Shenacadie to land and take on passengers and freight.

Connections at Iona.—The steamer *Blue Hill* shall make connections at Iona with the afternoon eastbound train from Halifax to Sydney. In case the train is late in arriving at Iona, the steamer must wait for a reasonable time before proceeding to Baddeck.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$9,000 per annum, payable quarterly in July, October, January, and April at the rate of $18.00 a round trip to a maximum of 500 trips.

Mails.—To be carried free.

DISTANCES

	Miles
Baddeck to Iona	12
" Grand Narrows	20
" McKay's Point	10
" Kempt Head	5
Distance between terminal points	20

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Blue Hill	135	18	7	92	195	100	300	38	12	East Boston, U.S.A.	1887	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Passengers Carried	Freight Carried	Live Stock	Mails		Subsidy Paid
					Lock Bags	Tied Sacks	
							$ cts.
1914	500	4,468	782	98	3,227	4,801	5,825 00
1915	598	4,156	824	54	3,065	4,200	5,728 32
1916	510	3,463	789	—	3,034	4,986	5,750 64
1917	477	4,380	1,015	—	2,854	5,419	5,825 00
1918	453	3,418	783	Nil.	2,999	4,659	5,825 00
1919	573	5,652	923	Nil	3,869	6,711	6,825 00
1920	484	5,745	841	28	3,104	5,929	6,825 00
1921	522	5,761	711	25	3,615	6,748	7,979 40
1922	492 In	2,190	602	1	1,830	6,327	
	Out	2,202	160	15	1,356	1,121	8,648 00
	Total	4,392	762	16	3,186	7,448	

CHARLOTTETOWN AND PICTOU

Contract No. 79.

T. & C. File 28276.

Vote 180.—Charlottetown and Pictou, steam service between—

1922-23 ..... $8,000
1923-24 8,000

Contractors.—The Georgetown Steamship Co., Ltd., of Pictou, N.S.

Contract dated.—May 10, 1922. *Duration of contract.*—From the opening of navigation until November 30, 1922.

Service and ports of call.—Daily, except Sundays, until October 1, and thereafter three round trips a week until the termination of the service in November, between Pictou and Charlottetown.

Subsidy.—$8,000 for the season, payable in instalments on July 1, Sept. 1, and on the completion of the contract.

Mails.—To be carried free.

Distance.—Charlottetown to Pictou, 52 miles.

DESCRIPTION OF STEAMER EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	Built			N. H.P.	Speed
	Length	Breadth	Depth	Net	Gross	Capacity		At	In	Of		
	Ft.	Ft.	Ft.									Knots
Magdalen	98·6	21·6	8·8	91	134	150	40	Shelburne	1906	Wood	28	10

TRAFFIC RETURNS

Calendar Year	No. of Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Bags of Mail	Automobiles	Subsidy Paid
							$ cts.
1921	141	2,776	746	207	Nil.	117	2,000 00
1922	146½	In 1,188	460	36	31	Not	
		Out 1,437	251	4	61	Stated	7,938 77
	Total	2,625	711	40	92		

CHARLOTTETOWN, VICTORIA AND HOLLIDAY'S WHARF

Contract No. 74.
T. & C. File 28314.

Vote 181.—Charlottetown, Victoria and Holliday's Wharf, steam service between—

1922–23 ..... $4,000
1923–24 4,000

Contractors.—The Charlottetown Steamship Co., Ltd., of Charlottetown, P.E.I.

Contract dated.—May 30, 1922. *Duration of Contract.*—From the opening to the close of navigation in 1922.

Service and Ports of Call—

Two round trips each week from the opening of navigation until October 1st, and thereafter one round trip each week until the close of navigation, from Charlottetown to Victoria; and two round trips each week throughout the season to Holliday's Wharf, East River and West River, calling at China Point, Orwell and Orwell Cove.

Subsidy.—$4,000 per season, payable in two instalments.

Mails.—To be carried free.

DISTANCES

	Miles
Charlottetown to Holliday's	17
Holliday's to China Point	2½
China Point to Orwell Cove	½
Charlottetown to Victoria	28
Charlottetown to Hickey's Wharf	11
Hickey's Wharf to Haggarty's	3
Haggarty's to Hayden's	1
Charlottetown to McEwen's	8
McEwen's to West River Bridge	2
	73

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Harland	113	27	6·7	217	352	50	286	33	10	Shelburne, N.S.	1908	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Barrels of Freight Carried	Live Stock	Mail Bags	Subsidy Paid
						$ cts.
1914	251	13,232	33,050	1,617	Nil	2,500 00
1915	255	13,165	31,041	1,053	Nil	2,500 00
1916	234	10,159	35,898	1,528	Nil	2,500 00
1917	226	10,536	41,873	1,275	Nil	2,500 00
1918	No service was performed					
1919	198	3,123	30,018	471	Nil	2,031 25
1920	242	9,125	30,665	1,728	Nil	2,500 00
1921	242	9,092	26,066	472	Nil	3,500 00
1922	241	In 4,620	10,758	861	Nil	
		Out 4,692	16,970	66	Nil	4,000 00
	Total	9,312	27,728	927	Nil	

GRAND MANAN AND THE MAINLAND

Contract No. 14.

T. & C. File No. 28056.

Vote 182.—Grand Manan and the Mainland, steam service between—

1922–23 ..... $15,000
1923–24 15,000

Contractors.—The Grand Manan Steamboat Company, of Grand Manan, N.B.

Date of Contract.—March 20, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—From June to September, inclusive:—

(*a*) One trip each week between Grand Manan and St. Andrew's, calling both ways at Campobello and Eastport, Maine.

(*b*) One trip each week between Grand Manan and St. John, *via* and calling both ways at Campobello and Eastport.

(*c*) One round trip each week between Grand Manan and St. John direct.

(*d*) One trip each week between Grand Manan and St. Stephen, calling both ways at Campobello, Eastport and St. Andrew's.

And during the remaining eight months of the year:—

(*e*) One trip each week between Grand Manan and St. Stephen, calling both ways at Campobello, Eastport and St. Andrew's.

(*f*) One trip each week between Grand Manan and St. John, calling both ways at Campobello and Eastport.

(*g*) One trip each week between Grand Manan and St. Andrew's, calling both ways at Campobello and Eastport.

Subsidy.—$15,000 per annum, payable quarterly in July, October, January and April.

Mails.—To be carried free.

Government Wharves.—Steamers must call at Government Wharves whenever possible.

DISTANCES

	Miles
Grand Manan to Campobello	15
Campobello to Eastport	3
Eastport to St. John	45
Eastport to St. Andrew	12
St. Andrew's to St. Stephen	18
St. John to Grand Manan	45
St. Stephen to Grand Manan	48
St. Andrew's to Grand Manan	30

DESCRIPTION OF STEAMER EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Grand Manan.	130	26	11	180	363	250	350	32	12	Liverpool, N.S.	1911	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons Freight Carried	Live Stock	Mails		Subsidy Paid
					Lock Bags	Tied Sacks	
							$ cts.
1914	172½	6,525	3,927	54	1,633	2,215	10,000 00
1915	176½	6,416	4,589	26	1,775	2,587	10,000 00
1916	174	6,977	5,427	34	1,952	2,859	10,000 00
1917	173	6,473	4,607	41	1,805	3,089	10,000 00
1918	163½	5,606	4,789	21	2,680	3,493	10,000 00
1919	165	7,921	4,793	107	1,782	3,577	11,875 00
1920	168	8,047	3,606	439	1,626	3,791	14,375 00
1921	175	7,963	3,448	134	1,700	4,268	15,000 00
1922	173	In 3,555	2,782	88	808	3,261	
		Out 4,144	859	9	663	673	15,000 00
	Totnl	7,699	3,641	97	1,471	3,934	

HALIFAX, CANSO AND GUYSBOROUGH

Contract No. 30.

T. & C. File No. 28267.

Vote 183.—Halifax, Canso and Guysborough, steam service between—

1922–23	$9,000
1923–24	9,000

Contractors.—The Halifax and Canso Steamship Co., Ltd., of Halifax, N.S.

Date of Contract.—May 12, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Weekly, all the year round, between Halifax and Guysborough.

Ports of Call.—Calling on all voyages each way at Canso, Whitehead, Drumhead, Isaac's Harbour, Goldboro, Port Beckerton and, weather permitting, at Port Hilford; and calling on all outward voyages at Half Island Cove and Queensport; calling fortnightly during open navigation on outward voyages at Country Harbour and Boylston; and during the months of January, February and March at Port Dufferin and Moser's River.

(*a*) From January to March inclusive a fortnightly call only need be made at Guysborough, Queensport and Half Island Cove.

(*b*) Calls at Port Hilford shall not be required when the depth of water south of the breakwater is less than 14 feet. The contractors shall, however, make every reasonable effort to call at this port.

Capacity of Steamer.—The steamer employed is guaranteed to have a cargo capacity of 380 tons, with passenger accommodation for 40 passengers, electric lighted throughout and fitted with adequate refrigeration for the carriage of fresh fish.

Laying off Steamer.—The steamer may lay off for refitting two trips each in year, at such time or times as will least interfere with the requirements of the service.

Government wharves.—The steamer must call whenever possible.

Subsidy.—$9,000 per annum, payable quarterly in July, October, January and on the completion of the service. (*a*) Provided that no deduction from subsidy shall be made for the loss of one trip during the quarter ending March 31 1923, due to heavy ice conditions.

Mails.—To be carried free.

DISTANCES

	Miles
Halifax to Port Hilford	89
Port Hilford to Beckerton	10
Beckerton to Isaac's Harbour	16
Isaac's Harbour to Whitehead	35
Whitehead to Canso	17
Canso to Queensport	12
Queensport to Guysborough	13
Total	192

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Chedabucto	145	24·5	16·5	268	509	tons 380	40	69	8	Dundee	1910	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mail Bags	Subsidy Paid
						$ cts.
1914	51	2,377	22,731	30	Nil	5,000 00
1915	51	2,247	25,098	Nil	Nil	5,000 00
1916	50	2,475	19,862	Nil	Nil	5,000 00
1917	51	2,443	25,481	21	—	5,000 00
1918	48	2,168	23,869	Nil	Nil	5,000 00
1919	50	2,287	30,701	Nil	Nil	5,000 00
1920	45	1,870	19,295	Nil	Nil	6,096 20
1921	49	1,223	19,153	Nil	Nil	6,932 69
1922	50	In 863	4,513	Nil	Nil	
		Out 896	15,235	Nil	Nil	
Total		1,759	10,749	Nil	Nil	8,365 38

HALIFAX AND LAHAVE RIVER PORTS

Contract No. 67.

T. & C. File No. 28070.

Vote 184.—Halifax, LaHave and LaHave River Ports, steam service between—

1922–23	$6,000
1923–24	6,000

Contractors.—The Western Steamship Co., Ltd., Halifax, N.S.

Date of Contract.—March 23, 1922. *Duration of Contract.*—Opening of navigation, 1922, to March 31, 1923.

Service and Ports of Call.—Leaving Halifax once each week, calling at LaHave, Riverport, East LaHave, Pleasantville, Conquerall Bank and Dayspring, and returning to Halifax, calling at the aforesaid ports.

During the winter months, when the LaHave river is frozen over, calls at Pleasantville, East LaHave, Conquerall Bank and Dayspring may be omitted.

During the months of January and February calls at any of the said ports may be omitted if ice conditions prevent their being made.

Government wharves.—Steamer must call whenever possible.

Subsidy.—$6,000 per annum, payable in instalments on the last days of June, September and March.

Mails.—To be carried free.

Withdrawal of steamer for repairs.—The steamer may be withdrawn from the service for a total period of fourteen days, if required, for necessary repairs.

DISTANCES

	Miles
Halifax to LaHave	52
" Riverport	54
" West LaHave	56
" Conquerall Bank	60

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Enterprise....	108	25	8·6	98	211	100	100	42	11	Shelburne, N.S	1907	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Bags Mail	Subsidy Paid
						$ cts.
1914	68½	Nil	4,294	Nil	Nil	2,815 00
1915	76½	134	4,820	Nil	Nil	3,000 77
1916	83½	682	5,287	6	Nil	3,639 60
1917	72	885	7,310	Nil	Nil	4,513 57
1918	23	368	2,300	Nil	Nil	1,095 26
1919	44	343	3,807	Nil	Nil	2,250 00
1920	46	246	3,282	Nil	Nil	3,750 00
1921	39	308	2,025	Nil	Nil	4,423 07
1922	47	In 133	857	Nil	Nil	
		Out 152	2,190	Nil	Nil	5,769 23
	Total.....	285	3,047	Nil	Nil	

HALIFAX AND NEWFOUNDLAND *via* CAPE BRETON PORTS

Contract No. 11.

T. & C. File No. 28059.

Vote 185.—Halifax and Newfoundland via Cape Breton Ports, steam service between—

1922–23..... $5,000
1923–24..... 5,000

Contractors.—J. A. Farquhar & Co., Ltd., of Halifax, N.S.

Date of Contract.—March 17, 1922. *Duration of Contract.*—For the season of navigation, 1922.

Service.—Fortnightly, until 14 complete round trips have been performed; or until the close of navigation, should it close before the said 14 trips can be performed.

Ports of Call.—Halifax to Sydney, *via* the south shore of Cape Breton, thence to North Sydney, Marble Mountain, Baddeck, Ingonish, Neil's Harbour White Point and St. Paul's Island; thence to Channel, Codroy, Sandy Point Bay of Islands and Bonne Baie, Nfld.; thence returning to Halifax, calling at Bay of Islands, Sandy Point, Codroy, Channel, St. Paul's Island, White Point Neil's Harbour, Ingonish, North Sydney and Sydney.

Subsidy.—$5,000 for the season, payable at the rate of $357.14 per round trip.

Mails.—To be carried free.

DISTANCES

	Miles
Halifax to St. Peter's	154
St. Peter's to Grand Narrows	21½
Grand Narrows to Baddeck	9½
Baddeck to North Sydney	40
North Sydney to Sydney	4½
Sydney to Ingonish	31
Ingonish to Neil's Harbour	11
Neil's Harbour to Aspy Bay	10
Aspy Bay to St. Paul's Island	21
St. Paul's Island to Channel	49
Channel to Codroy	27
Codroy to Bay St. George	45
Bay St. George to Bay of Islands	111
Bay of Islands to Bonne Bay	52
Total	596

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Stella Maris	124	23·6	12·2	54	229	350	Nil	70	8½	London	1882	Wood and iron

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried		Tons of Freight Carried	Live Stock	Mail Bags	Subsidy Paid
							$ cts.
1914	14	203		9,028	Nil	28	10,000
1915	15	276		9,346	Nil	39	10,000
1916	14	293		9,051	2	44	10,000
1917	13	317		7,760	Nil	65	10,000
1918	13	36		5,136	Nil	51	8,000
1919	18	145		4,913	83	73	10,000
1920	14	55		4,817	Nil	56	5,000
1921	14	54		4,468	Nil	55	5,000
1922	14½	In	16	2,136	5	21	
		Out	13	2,405	7	26	5,000
Total		29		4,541	12	47	

ORIGIN, QUANTITY AND VALUE OF FREIGHT EXPORTED FROM CANADA TO NEWFOUNDLAND

Calendar Year	Canadian Origin			United States Origin			Total		
	Weight	Measurement	Value	Weight	Measurement	Value	Weight	Measurement	Value
	Tons	Tons	$	Tons	Tons	$	Tons	Tons	$
1914	4,421	100	217,962	178	129	25,925	4,599	229	243,887
1915	4,308	167	257,505	293	278	46,341	4,601	445	303,846
1916	4,012	73	276,533	690	12	110,740	4,702	85	387,273
1917	3,058	53	293,323	454	3	75,290	3,512	56	368,613
1918	2,280	34	246,535	300	3	43,121	2,580	37	291,656
1919	2,631	83	410,650	621	Nil	73,232	3,252	83	483,882
1920	2,565	Nil	374,210	354	Nil	69,502	2,919	Nil	443,712
1921	1,848	Nil	191,767	809	Nil	99,464	2,657	Nil	291,231
1922	1,711	Nil	124,482	694	Nil	72,787	2,405	Nil	197,269

PRINCIPAL ARTICLES EXPORTED

Of Canadian Origin.—Flour, paint, molasses, gasolene, beans, stoves, furniture, butter, tea, hay, rope, tin ingots, apples, oats, kerosene oil, beef, pork, sugar, potatoes, oil, clothing, boots and shoes, nets, hardware, wire fencing, roofing, axes, and engines.

Of United States and Foreign Origin.—Molasses, engines and parts thereof, beef, rope, machinery, pork, tobacco, kerosene oil, oranges, shoes, feed, whisky, sugar, tea, salt, gasolene engines, bananas, oranges, and raisins.

HALIFAX, SPRY BAY AND CAPE BRETON PORTS

Contract No. 55.

T. & C. File No. 28281.

Vote 186.—Halifax and Spry Bay and ports in Cape Breton, steam service between

1922-23	$6,000
1923-24	6,000

Contractors.—Halifax and Sheet Harbour Steamship Company, Ltd., 234-236 Hollis street, Halifax, N.S.

Date of Contract.—June 1, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Weekly, all the year round.

Ports of Call.—Halifax, Jeddore, Owl's Head, Tangier, Pope's Harbour, Ship Harbour, Sheet Harbour, Sober Island, Spry Bay, St. Peter's, Arichat, West Arichat, Poulamond and L'Ardoise; as well as such other ports or places between the above terminal ports as may be required by the minister.

(*a*) The call at Pope's Harbour is at the discretion of the contractors.

(*b*) The call at L'Ardoise may be omitted in January, February and March.

(*c*) Between January 20 and March 20 the contractors have the option of omitting calls at St. Peter's, Arichat, West Arichat and Poulamond, provided satisfactory proof can be shown the minister that the steamer was prevented from calling at these ports on account of ice conditions.

(*d*) A fortnightly service to Marble Mountain shall be performed during the season of open navigation.

(*e*) Through bills of lading shall be issued by the *Margaret* between Halifax and all ports in the Bras d'Or lakes and on the eastern coast of Cape Breton called at by the *Arcadia* during the present season.

Subsidy.—$6,000 per annum, payable in four equal instalments in July, October, January and April.

Government Wharves.—Steamers must call whenever possible.

Time for repairs.—Three weeks are allowed during the year for Government inspection and annual overhauling.

Mails.—To be carried free.

DISTANCES

	Miles
Halifax to Jeddore	55
Jeddore to Owl's Head	15
Owl's Head to Tangier	10
Tangier to Pope's Harbour	10
Pope's Harbour to Ship Harbour	10
Ship Harbour to Sheet Harbour	20
Sheet Harbour to Sober Island	20
Total	120

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Margaret	92	19	9	100	195	175	90	27	10½	Sheet Harbour	1907	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mail	Subsidy Paid
						$ cts.
1914	50	2,572	7,700	Nil	Nil	3,000 00
1915	50	2,630	7,535	Nil	Nil	4,000 00
1916	45	2,207	9,180	Nil	Nil	3,603 08
1917	45	1,522	7,155	Nil	Nil	3,750 25
1918	41	1,101	5,740	100	Nil	3,767 92
1919	46	1,342	6,225	Nil	Nil	4,000 00
1920	46	1,979	5,600	Nil	Nil	4,000 00
1921	48	1,962	5,390	Nil	Nil	5,346 15
1922	48½ In	765	1,920	Nil	Nil	
	Out	990	2,695	Nil	Nil	5,884 61
	Total	1,755	4,615	Nil	Nil	

HALIFAX, SOUTH CAPE BRETON AND BRAS D'OR LAKE PORTS

Contract No. 66.

T. & C. File No. 28283.

Vote 187.—Halifax, South Cape Breton and Bras d'Or Lake Ports, steam service between—

1922-23	$6,000
1923-24	6,000

Contractors.—Messrs. Hendry, Ltd., Halifax, N.S.

Date of Contract.—June 1, 1922. *Duration of Contract.*—From the opening to the closing of navigation in 1922.

Service and Ports of Call.—Passengers and freight shall be conveyed between Halifax and St. Peter's by the steamers *Margaret* and *Strathlorne*, and shall be transhipped at St. Peter's to and from the *Arcadia* for the purpose of proceeding to or from the undermentioned points in the Bras d'Or lakes, and on the east coast of Cape Breton. The *Arcadia's* services shall be as follows: (*a*) Four round trips each month from St. Peter's, N.S. to Sydney, through the Bras d'Or lakes, calling at all ports on the east and west sides of the lakes at which freight is offered, or is to be delivered, including Grand Narrows, Iona, Baddeck, Whycocomagh, Little Narrows, Nyanza, Boularderie Centre, Boularderie, Marble Mountain, West Bay, Washabuck Centre, Johnston's Harbour, Irish Cove, Big Pond, East Bay, Castle Bay and Grand Narrows, extending each trip from Sydney to North Sydney, Glace Bay, Port Morien, Main-à-dieu, Louisburg and Gabarous.

Through tickets for passengers and through bills of lading for freight shall be issued between Halifax *via* the *Margaret* and *Strathlorne*, and the above-mentioned ports in the Bras d'Or Lakes and on the East Coast of Cape Breton.

If, during the early spring and late fall, the steamers *Strathlorne* and *Margaret* have their full complement of freight and are unable to carry the additional freight required to and from the *Arcadia*, the contractors agree to supply an additional steamer betweem Halifax and St. Peter's, for the purpose of carrying the surplus of the *Arcadia*'s freight.

The calls at Main-a-dieu are to be conditional upon the weather permitting. Calls at Glace Bay shall not be made unless, in the opinion of the Minister, it is safe for the steamer *Arcadia* to call at this port.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$6,000 per annum, payable in four instalments of $1,500 each.

Mails.—To be carried free.

DISTANCES

	Miles
Halifax to St. Peter's	145
St. Peter's to Grand Narrows	20
Grand Narrows to Iona	1
Iona to Baddeck	10
Baddeck to Pt. Bevis	9
Pt. Bevis to Boularderie	3
Boularderie to Boularderie Centre	5
Boularderie Centre to Big Bras d'Or	6
Big Bras d'Or to New Campbellton	1
New Campbellton to North Sydney	15
North Sydney to Sydney	5
Sydney to Glace Bay	21
Glace Bay to Port Morien	15
Port Morien to Main-a-dieu	14
Main-a-dieu to Louisburg	16
Louisburg to Gabarous	14
Total	300

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Arcadia.....	73	16·7	6·4	42	62	70	Nil	30	8	Yarmouth, N.S.	1884	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy Paid
						$ cts.
1914.....	19	6	4,603	Nil	Nil	3,333 33
1915.....	14	Nil	4,290	Nil	Nil	2,666 66
1916.....	15	Nil	3,770	Nil	Nil	5,625 00
1917.....	15	57	4,270	Nil	Nil	5,625 00
1918.....	14	Nil	2,342	Nil	Nil	3,999 94
1919.....	26	181	3,775	Nil	Nil	6,000 00
1920.....	32	280	5,820	Nil	Nil	6,000 00
1921.....	32	274	5,725	Nil	Nil	6,000 00
1922.....	33	In 105	2,965	Nil	Nil	
		Out 150	3,115	Nil	Nil	6,000 00
Total.....		255	6,080	Nil	Nil	

In 1918 this service, commencing at Halifax, was performed by the Provincial S.S. Co., and previous to that by the Halifax and Glace Bay S.S. Co.

HALIFAX AND WEST COAST CAPE BRETON

Contract No. 70.

T. & C. File No. 28282.

Vote 188.—Halifax and West Coast of Cape Breton, calling at way ports, steam service between—

1922-23..... $6,000
1923-24..... 6,000

Contractors.—The Halifax and Inverness SS. Co., Ltd., of Halifax, N.S.

Date of Contract.—May 15, 1922. *Duration of Contract.*—From the opening to the close of navigation in 1922.

Service.—Weekly. Twenty-six trips shall constitute a full season's service, although the contractors shall be required to make such additional sailings as weather conditions shall permit.

Ports of Call.—Port Mulgrave, Halifax, Port Hawkesbury, Port Hastings, Port Hood, Mabou, Margaree, Grand Etang, Cheticamp, and Eastern Harbour, calling once every two weeks at Havre au Boucher, Cape George and Pleasant Bay, and calling at Inverness, Broadcove Marsh and Margaree Island whenever there is a reasonable quantity of freight or number of passengers to be landed or embarked, weather permitting.

(*b*) Calls to be made at Chimney Corner when the wharf is completed, and when there are passengers or freight to be taken on or put off at that place.

(*c*) One call shall be made during the autumn of the present year at Ballantyne's Cove, N.S.

(*d*) Through bills of lading shall be issued by the *Strathlorne* from Halifax to all ports in the Bras d'Or Lakes, and on the Eastern Coast of Cape Breton, called at by the *Arcadia* during the present season.

(*e*) On all trips north the captain of the *Strathlorne* shall advise the agent of the contractors at Margaree from Mulgrave or Mabou the approximate hour of his arrival at Margaree, and on southbound trips he shall similarly advise the agent at Margaree from Grand Etang.

(*f*) When weather conditions at Margaree are such as to prevent boats or lighters coming out to the steamer, the agent shall hoist a red or white flag within a reasonable time of the steamer's announced arrival, so that the steamer may not be unduly delayed.

(*g*) On arrival off the port of Margaree the steamer shall anchor and give notice of her presence by whistle or other suitable means. If boats do not come off from the shore within half an hour after anchoring, the steamer shall be at liberty to hoist her anchor and proceed on her voyage.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$6,000 per annum, payable in instalments of $3,000 on July 1 and on completion of the service.

Mails.—To be carried free.

DISTANCES

	Miles
Halifax to Mulgrave	150
Mulgrave to Hawkesbury	1
Hawkesbury to Hastings	3
Hastings to Havre Boucher	7
Havre Boucher to Port Hood	20
Port Hood to Mabou	10
Mabou to Margaree	31
Margaree to Grand Etang	8
Grand Etang to Eastern Harbour	9
Eastern Harbour to Pleasant Bay	15
Total	254

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Strathlorne	116	20·2	9	81	135	180	40	24	9	Mahone	1909	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy Paid
						$ cts.
1914	27	Nil	4,662	Nil	Nil	3,058 82
1915	27	3	3,782	Nil	Nil	3,000 00
1916	25	Nil	6,079	Nil	Nil	2,941 18
1917	27	108	7,150	Nil	Nil	4,000 00
1918	27	64	4,960	Nil	Nil	4,000 00
1919	27	57	3,125	Nil	Nil	4,000 00
1920	26	470	6,000	Nil	Nil	4,000 00
1921	33	325	5,730	Nil	Nil	6,000 00
1922	26	In 85	1,455	Nil	Nil	
		Out 110	2,125	Nil	Nil	6,000 00
	Total ..	195	3,580	Nil	Nil	

MISCOU, SHIPPEGAN AND THE MAINLAND

Contract No. 57.

T. & C. File No. 28295.

Vote 189.—Mainland and Islands of Miscou and Shippegan, steam service between:—

1922–23.....$ 3,300
1923–24..... 3,300

Contractors:—The Gloucester Navigation Co., Ltd., of Lameque, N.B.

Date of contract:—July 15, 1922.

Duration of contract:—From the opening to the close of navigation in 1922.

Service:—Daily, except Sunday.

Ports of call:—Lameque, Shippegan, Little Lameque Wharf, Miscou Wharf and Little Shippegan.

Subsidy:—$3,300 for the season of navigation, payable in two instalments, in September, and on the close of navigation.

Mails:—To be carried free.

DISTANCES

	Miles
Lameque to Shippegan	5
Shippegan to Little Lameque	7
Little Lameque to Island R.	9
Island River to Little Shippegan	4
Little Shippegan to Miscou	1
	26
Return—Miscou to Shippegan	19
Shippegan to Lameque	5
	24

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	Built			N.H.P.	Speed.
	Length	Breadth	Depth	Net	Gross	Capacity		At	In	Of		
	Ft.	Ft.	Ft.									Knots
En Avant....	42	12	4½	10	12	6	8	Lameque..	1913	Wood	12	7½

This vessel is a gasoline schooner.

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried		Tons of Freight Carried	Live Stock	Mails	Subsidy Paid
							$
1922.	168	In	228	186	Nil	Nil	3 399
		Out	202	179	Nil	Nil	
		Total...	430	365	Nil	Nil	

MULGRAVE AND CANSO

Contract No. 53.

T. & C. File No. 27980.

Vote 190.—Mulgrave and Canso, steam service between—

1922–23.....$ 13,500
1923–24..... 13,500

Contractors.—Hugh Cann & Son, Ltd., of Yarmouth, N.S.

Date of Contract.—March 1, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Daily (Sundays excepted).

Ports of Call.—Port Mulgrave and Canso, N.S.

Withdrawal for Repairs.—The steamer *R. G. Cann* may be withdrawn for repairs for one month in each year. During such withdrawal the service shall be performed by such steamer other than the *Malcolm Cann* or the *Percy Cann* as may be approved by the Minister.

Wind and Ice.—In the event of any trip or trips being missed on account of wind, fog, snow or ice upon satisfactory evidence being submitted to the Minister, he may direct that no deduction be made from the subsidy otherwise payable for the trip so missed.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$13,500 per annum, payable in quarterly instalments in July, October, and January, and upon completion of the service.

(*a*) One-quarter of the subsidy otherwise payable shall be deducted when the contractors fail to make connections with the Intercolonial Railway at Mulgrave for both eastbound and westbound traffic in summer, and westbound traffic in winter, in sufficient time to permit of the transfer of passengers, mails and express shipments; but such penalty shall not be inflicted when the contractors are able to satisfy the Minister that the connection has been missed owing to wind, fog, snow or ice.

(*b*) $500 of the subsidy shall be deducted should the contractors not place on the said route a substitute steamer other than the *Malcolm Cann* or the *Percy Cann* when the *Robert G. Cann* is taken off the said route for repairs as hereinbefore stipulated.

Mails.—To be carried free.

Distance.—Canso to Mulgrave, 24 miles.

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Robert G. Cann	119	24·6	9·4	111	265	Not stated	100	42	11	Shelburne, N.S.	1911	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy Paid
						$ cts.
1914	296½	3,795	3,356	13	3,724	6,500 00
1915	307	5,303	3,963	12	4,036	6,500 00
1916	305	4,897	4,295	Nil	2,852	6,500 00
1917	306	4,580	6,873	609	2,407	6,500 00
1918	295	4,251	5,232	Nil	3,777	6,500 00
1919	294	4,820	4,266	Nil	Nil	8,750 00
1920	263½	4,438	3,847	Nil	4,957	10,786 85
1921	298	3,550	2,920	Nil	5,528	12,870 06
1922	301	In 1,826	1,360	Nil	6,183	13,500 00
		Out 1,830	1,386	Nil		
	Totals...	3,656	2,746	Nil	6,183	

MULGRAVE AND GUYSBOROUGH

Contract No. 54.

T. & C. File No. 28196.

Vote 191.—Mulgrave and Guysborough, calling at intermediate ports, steam service between—

1922–23	$9,500
1923–24	9,500

Contractors.—The Elaine Steamship Co., Ltd., Halifax, N.S.

Date of Contract.—May 12, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service.—Daily (except Sundays).

Ports of Call.—Port Mulgrave and Guysborough, calling at Queensport every trip in each direction. Trips to Boylston shall be made three times each week, during the season of open navigation.

Repairs.—The steamer may be withdrawn one month during each year for repairs, etc. During such withdrawal the service shall be performed by such steamer as may be approved by the Minister.

Wind, Fog, Snow or Ice.—If any trip be missed on account of wind, fog, snow or ice, no deductions may be made from the subsidy otherwise payable for the trip so missed.

Subsidy.—$9,500 per annum, payable quarterly, in July, October, January and April.

(*a*) One-quarter of the subsidy otherwise payable shall be deducted when the contractors fail to make connections with the Intercolonial Railway at Mulgrave for both eastbound and westbound traffic in the summer season and westbound traffic in the winter season in sufficient time to permit of the transfer of passengers, mails and express shipments, unless the connection has been missed owing to wind, fog, snow or ice.

Mails.—To be carried free.

DISTANCES

	Miles
Guysborough to Mulgrave (via Queensport)	29½
Mulgrave to Guysborough (direct)	25
Guysborough to Boylston	5

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Westport III..	101	21	9	49	140	70	35	24	10	Shelburne.....	1903	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy Paid
						$ cts.
1914	297½	3,812	1,815	Nil	3,052	5,500 00
1915	308	4,037	1,679	Nil	3,440	5,500 00
1916	264	3,670	1,600	Nil	2,722	5,041 66
1917	294	3,504	2,803	Nil	2,248	5,500 00
1919	252	2,584	1,953	1	2,622	6,219 62
1920	225	1,748	1,606	2	719	5,507 29
1921	283	1,683	753	Nil	1,821	6,942 40
1922	278	In 492	472	2	1,783	
		Out 570	380	2	73	8,407 75
	Total....	1,062	852	4	1,856	

NEWCASTLE, NEGUAC AND ESCUMINAC, MIRAMICHI RIVER AND MIRAMICHI BAY

Contract No. 49.

T. & C. File No. 28167.

Vote 192.—Newcastle, Neguac and Escuminac, calling at all intermediate points on the Miramichi River and Miramichi Bay, steam service between—

1922–23	$5,000
1923–24	5,000

Contractors.—The Miramichi River Service, Ltd., of Chatham, N.B.

Date of Contract.—May 9, 1922. *Duration of Contract.*—From the opening to the close of navigation in 1922.

Service and Ports of Call.—On Mondays, Wednesdays and Fridays: From Newcastle, to and calling both ways at Chatham, Lower Newcastle, Loggieville, Oak Point, Church Point, and Neguac.

On Tuesdays, Thursdays and Saturdays: From Newcastle, to and calling both ways at Chatham, Loggieville, Oak Point, Baie du Vin, and Hardwicke; calling on Tuesdays and Thursdays at Escuminac.

Calls at Escuminac are to be made during favourable weather in the salmon-fishing season. When, owing to unfavourable weather, the steamer does not call at Escuminac, calls shall be made at Hardwick. Calls shall be made at Lower Newcastle when there are passengers or freight to be taken on or put off at that place.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$5,000 payable in two equal instalments, on September 1 and on the completion of the contract.

Mails.—To be carried free.

DISTANCES

	Miles
Newcastle to Chatham	5
Chatham to Loggieville	5
Loggieville to Oak Point	7
Oak Point to Burnt Church	9
Burnt Church to Bay du Vin	10
Bay du Vin to Escuminac	13
Escuminac to Neguac	17
Total	66

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Alexandra	97	24·5	9	136	200	50	460	38	10	Chatham	1902	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Mail Bags	Subsidy Paid
						$ cts.
1914	160	7,756	1,921	32	510	2,262 00
1915	186	7,762	2,404	37	594	2,500 00
1916	180	8,478	2,414	44	560	2,500 00
1917	172	7,848	2,275	36	544	2,500 00
1918	177	7,070	2,426	40	560	2,500 00
1919	165	8,278	2,558	24	508	3,000 00
1920	153		No statistics available			3,000 00
1921	158	3,548	2,102	Nil	632	3,938 77
1922	184	In 2,020	742	Nil	368	
		Out 2,030	743	Nil	368	5,000 00
	Total	4,059	1,485	Nil	736	

PELEE ISLAND AND THE MAINLAND

Contract No. 52.

T. & C. File 27976.

Vote 193.—Pelee Island and the Mainland, steam service between—

1922–23..... $11,000
1923–24..... 11,000

Contractors.—The Windsor and Pelee Island Steamship Co., Ltd., Pelee Island, Ont.

Date of Contract.—April 13, 1922. *Duration of Contract.*—From the opening of navigation in 1922 to March 31, 1923.

Service and Ports of Call.—Six round trips each week, weather permitting, during the months of April, May, June, September and October, and five round trips each week during July, August and November, and until the close of navigation, weather permitting, between Pelee Island and the mainland, calling on each trip at Kingsville and Leamington, Ont.

Tariff Rates.—Passenger rate for the trip between Pelee Island and Kingsville or Leamington or vice versa, $1; and for the trip between Pelee Island and Windsor or vice versa, $1.50.

Freight rates are to be same as those contained in a schedule attached to the contract.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$11,000, payable in equal instalments on the last days of June, September, December and March.

Mails.—Are to be carried during open navigation between the post offices of Pelee Island, Pelee Island South and Scudder, and such post offices on the mainland as may be designated by the Postmaster General.

DISTANCES

	Miles
Kingsville to Leamington	8
Leamington to Pelee Island	16
Pelee Island to Windsor	53
Total	77

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Pelee	145	24	13	242	537	....	389	58	13	Collingwood	1914	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Passengers	Freight	Lumber	Live Stock	Mails		Subsidy Paid
						Bags	Sacks	
		No.	Tons	Feet				$
1914	187	3,672	3,469	169,000	571	562	455	7,000
1915	241	3,825	3,580	174,000	1,010	765	726	8,000
1916	236	3,987	2,700	98,000	1,065	732	644	8,000
1917	231	3,761	2,696	89,000	1,101	872	583	8,000
1918	205	4,546	1,867	167,000	561	500	676	8,000
1919	218	5,662	2,757	154,000	913	662	972	8,000
1920	211½	5,940	2,404	166,000	1,305	781	803	8,000
1921	217½	5,586	1,878	63,000	444	700	740	8,000
1922	217	In 2,995	787	61,000	13	452	1,149	
		Out 2,989	1,078	Nil	826	459	38	10,250
	Total...	5,984	1,865	61,000	839	911	1,187	

SCHEDULE OF FREIGHT RATES

—	Kingsville and Leamington	Windsor
	$ cts.	$ cts.
Grain and potatoes, per cwt, car lots	0 10	0 12
Grain and potatoes, less than carload	0 12	0 15
Fruit in baskets, per cwt	0 30	0 30
Wine, per bbl	0 75	0 75
Oil, per barrel	0 85	0 85
Salt and flour, per bbl	0 35	0 35
Minimum charge on one parcel	0 25	0 25
Any one animal, horse or cattle, up to five, each	2 50	2 50
Any additional animal over five	2 25	2 25
Hogs and sheep up to ten, each	0 75	0 75
Hogs and sheep over ten, each	0 65	0 65
Groceries and hardware, per cwt	0 25	0 25
Lumber, per M ft. up to 5 M ft	3 50	3 50
Over 5 M ft	3 00	3 00
Shingles, per M	0 40	0 40
Laths, per M	0 50	0 50
Gristing, per bag, return	0 20	0 20
Tobacco, per cwt	0 40	0 40
Buggies, set up, each	1 75	1 75
Buggies, crated, each	2 50	2 50
Coal, per ton	2 00	2 00
Coal, per ton, in carload lots	1 50	1 50
Farm machinery, per cwt	0 45	0 45
Flour, per barrel	0 40	0 40
Lubricating oils, per barrel	0 85	0 85
Linseed oils, per barrel	0 85	0 85
Turpentine, per barrel	0 75	0 75
3 inch tile, per 100	0 60	0 60
4 " "	0 80	0 80
5 " "	1 00	1 00
6 " "	1 20	1 20
8 " "	1 60	1 60
10 " "	2 00	2 00
12 " "	2 40	2 40
Fish, per cwt	0 35	0 35
Automobiles, one way, including driver	3 00	3 00
Automobiles, return, including driver	5 00	5 00
Brick, per M	6 00	6 00
Lime, per barrel	0 50	0 50
Cement, per barrel	0 55	0 55
Cement, carloads	0 50	0 50
Beer, per case	0 35	0 35
Pop, per case	0 25	0 25
Eggs, per crate	0 25	0 25
Hay and straw, per ton	2 50	2 50
Wool, per cwt	0 40	0 40
Hides, per cwt	0 45	0 45
Fence posts, each	0 05	0 05
Wagon, empty	2 50	2 50
Stone, per ton	1 50	1 50
Hardwall plaster, per cwt	0 25	0 25
Scrap iron, per cwt	0 25	0 25
Cauliflower, per cwt	0 14	0 14
Pianos, each	5 00	5 00
Organs, each	3 00	3 00
Onions, in carloads	0 10	0 12
Onions, less than carloads	0 12	0 15
Poultry, in crates, per cwt	0 75	0 75
Poultry, not crated, per cwt	1 00	1 00

PASSENGER FARES

Between Pelee Island and Leamington and Kingsville—Single.....$ 1 00

MULGRAVE, ARICHAT AND PETIT DE GRAT

Contract No. 20.

T. & C. File No. 28168.

Vote 194.—Mulgrave, Arichat and Petit de Grat, steam service between—

1922-23	$10,000
1923-24	10,000

Contractor.—The Arichat Steamship Co., Ltd., of Sydney, N.S.

Date of Contract.—April 11, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—One full trip each way (Sundays excepted) daily between Petit de Grat and Mulgrave, calling on all trips both going and coming at Arichat and West Arichat.

Wind and Ice.—In the event of any trip or trips being missed on account of wind or drifting ice, no deduction may be made from the subsidy otherwise payable for the trips so missed.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$10,000, payable quarterly in July, October, January and April.

Repairs.—The steamer may be laid off during such period as may be approved of by the Minister for repairs, inspection, cleaning, painting, etc. While the *Arichat* is laid off, the contractors shall perform a daily service with a substitute vessel.

Mails.—To be carried free.

DISTANCES

	Miles
Petit de Grat to Arichat	8
Arichat to West Arichat	7
West Arichat to Mulgrave	18
Total	33

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Arichat	84·9	19·3	10·3	54	144	120	100	24	9½	Montreal	1917	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mail Sacks	Subsidy Paid
						$ cts.
1914	276½	2,569	835	Nil	3,354	6,750 00
1915	275½	2,140	832	Nil	2,944	7,000 00
1916	241	2,392	1,009	Nil	2,485	6,125 00
1917	217½	1,535	1,106	Nil	2,235	5,512 43
1918	265	1,969	1,541	Nil	3,075	7,000 00
1919	242½	2,108	2,051	2	3,503	6,107 58
1920	166	2,386	875	7	2,612	7,562 50
1921	200	1,224	969	100	Nil	9,666 67
1922	269	In 1,069	625	Nil	Nil	
		Out 740	296	Nil	Nil	9,968 35
		1,809	921	Nil	Nil	

PICTOU AND MONTAGUE

Contract No. 19.

T. & C. File No. 24082.

Vote 195.—Pictou and Montague, calling at Murray Harbour and Georgetown, steam service between—

1922-23	$6,000
1923-24	6,000

Contractor.—La Have Steamship Co., Ltd., of West La Have, N.S.

Date of Contract.—August 12, 1922. *Duration of Contract.*—From the opening to the close of navigation in 1922.

Service and Ports of Call.—Three round trips each week, sailing from Montague, calling at Georgetown and Beach Point, P.E.I., and Pictou, N.S., returning to Beach Point, Georgetown and Montague, and making two calls each week at Cardigan, Newport and Murray Harbour North. Any changes in the itinerary may be made by the contractors subject to the approval of the Minister.

Subsidy.—$6,000 for the season, payable in three instalments.

Mails.—To be carried free.

Government Wharves.—Steamer must call whenever possible.

DISTANCES

	Miles
Pictou to Montague	47
Montague to Cardigan	22
Montague to Murray Harbour	20
Murray Harbour North to Pictou	38
Georgetown to Pictou	40
Montague to Lower Montague	4
Lower Montague to Georgetown	2
Cardigan to Newport	4

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Tussle.....	83·2	20·5	9·8	67	151	100	25	28	10	Lunenburg, N.S.	1915	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried		Tons of Freight Carried	No. of Live Stock Carried	Bags Mails	Subsidy Paid
							$ cts.
1914	97	1,885		5,126	423	417	6,000 00
1915	96	1,926		4,892	230	393	6,000 00
1916	85	1,455		5,468	88	124	5,684 21
1917	84	1,562		5,956	72	15	6,000 00
1918	43	1,497		1,040	62	Nil	3,580 00
1919	61	1,544		1,890	107	Nil	6,000 00
1920	68	2,153		1,191	41	Nil	6,000 00
1921	50	897		517	–	Nil	6,000 00
1922	28	In	98	203	23	Nil	
		Out	111	13	–	Nil	3,360 00
	Total.....		209	216	23	Nil	

PICTOU, MULGRAVE AND CHETICAMP

Contract No. 16.

T. & C. File No. 28161.

Vote 196.—Pictou, Mulgrave and Cheticamp, steam service between—

1922-23	$11,000
1923-24	11,000

Contractor.—The North Bay Steamship Co., Ltd., of Port Hood, N.S.

Date of Contract.—May 1, 1922. *Duration of Contract.*—From the opening to the close of navigation, 1922.

Service and Ports of Call.—(*a*) 12 round trips during the season between Pictou and Mulgrave, calling both ways (where there are passengers or freight offering) at Arisaig, Georgeville, Cape George, Morristown, Malignant Cove, Livingstone Cove, Ballantyne Cove, and Cribbin's Point.

(*b*) Three round trips each week from May 15th to November 15th, both dates inclusive, and two round trips each week during the remainder of the season, between Mulgrave and Cheticamp, calling both ways at Port Hastings, Port Hawkesbury, Port Hood, Port Hood Island, Margaree Harbour, Grand Etang, and Eastern Harbour, making 50 round trips during the season; and

calling once each week at Pleasant Bay, and whenever passengers or freight are offered and whenever required by the Minister, at Chimney Corner, Henry Island, Mabou Mouth, Inverness, Red Cape, and Port Bain, as well as at such other port or ports, place or places *en route* as the minister may direct.

(*c*) If so required by the minister eight round trips during the season between Souris and Mulgrave may be substituted for eight round trips between Pictou and Mulgrave aforesaid, calling both ways at Arisaig, Georgeville, Cape George, Morristown, Malignant Cove, Livingstone Cove, Ballantyne Cove, and Cribbin's Point, of which one trip shall be made in June, two in July, two in August, one in September and two in October.

Regular semi-weekly connections are to be maintained with the Canadian National Railways at Mulgrave, and the Plant Line steamers at Hawkesbury.

Subsidy.—$11,000, payable in equal instalments on the first days of July and October and on the completion of the service.

Mails.—To be carried free.

Government Wharves.—Steamer must call whenever possible.

DISTANCES

	Miles
Souris to Arisaig	88
Pictou to Arisaig	24
Arisaig to Malignant Cove	5
Malignant Cove to Georgeville	5
Georgeville to Livingstone	4
Livingstone to Ballantyne	16
Ballantyne to Morristown	10
Morristown to Mulgrave	27
Mulgrave to Hawkesbury	2
Hawkesbury to Hastings	3
Hastings to Port Hood	27
Port Hood to Mabou Mouth	8
Mabou Mouth to Port Bain	15
Port Bain to Inverness	5
Inverness to Red Cape	5
Red Cape to Margaree	11
Margaree to Grand Etang	10
Grand Etang to Cheticamp	10
Cheticamp to Pleasant Bay	19
Total	206

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimension			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Kinburn	114	23·5	10·5	79	168	..	40	28	10	Mahone Bay, N.S.	1910	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried	Tons of Freight Carried		No. of Live Stock	Bags Mail	Subsidy Paid
			Weight	Mensurement			
							$ cts.
1914	64	550	535	Nil	Nil	Nil	5,942 70
1915	67	315	1,145	Nil	Nil	Nil	5,566 26
1916	66	633	1,311	Nil	Nil	Nil	8,106 39
1917	66	343	922	545	Nil	Nil	7,500 00
1918	62	493	3,125	Nil	Nil	Nil	7,500 00
1919	65	824	9,000	Nil	Nil	Nil	7,500 00
1920	65	454	2,445	Nil	Nil	Nil	7,500 00
1921	63	333	2,237	Nil	Nil	Nil	7,500 00
1922	76½	In 430	1,348	Nil	Nil	Nil	
		Out 358	1,264	Nil	Nil	Nil	11,000 00
	Total	768	2,612	Nil	Nil	Nil	

PICTOU, NEW GLASGOW AND ANTIGONISH COUNTY PORTS

Contract No. 75.

T. & C. File No. 28037.

Vote 197.—Pictou, New Glasgow and Antigonish County Ports, schooner service between—

1922-23	$1,500
1923-24	1,500

Contractor.—James Wilson Smith, of Pictou, N.S.

Date of Contract.—April 3, 1922. *Duration of Contract.*—From the opening to the close of navigation (November 1), 1922.

Service and Ports of Call.—One round trip each week from Pictou, calling at New Glasgow, Lismore, McAra's Brook, Arisaig, Malignant Cove, Georgeville, Livingstone Cove, Ballantyne Cove, Morristown Wharf, Bayfield, Tracadie and Havre au Boucher. The call at Tracadie is contingent upon there being sufficient depth of water at the wharf there.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$1,500, of which $750 is payable on August 1, and the balance upon the completion of the service.

Mails.—To be carried free.

DISTANCES

	Miles
New Glasgow to Pictou	9
Pictou to Lismore	17
Lismore to McAra's Brook	3
McAra's Brook to Arisaig	3
Arisaig to Malignant Cove	4
Malignant Cove to Georgeville	4
Georgeville to Livingstone Cove	4
Livingstone Cove to Ballantyne Cove	6
Ballantyne Cove to Morristown	7
Total	57

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Ryse	47·3	12·8	6	20	20	28	Nil	30	8	Shippegan, Rebuilt, Souris	1889 1914	Wood

This vessel is a schooner, fitted with an auxiliary gasolene engine.

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried	Tons of Freight Carried	Live Stock	Mails	Subsidy Paid
						$ cts.
1914	24	Nil	540	Nil	Nil	1,000 00
1915	26	Nil	660	Nil	Nil	1,000 00
1916	26	Nil	253	Nil	Nil	1,000 00
1917	26	Nil	565	Nil	Nil	1,000 00
1918	No service was performed					
1919	20	Nil	290	Nil	Nil	1,500 00
1920	28	Nil	440	Nil	Nil	1,500 00
1921	27	Nil	530	Nil	Nil	1,386 55
1922	26	In Nil	50	Nil	Nil	
		Out Nil	450	Nil	Nil	1,500 00
	Total	Nil	500	Nil	Nil	

PORT MULGRAVE, ST. PETER'S, IRISH COVE AND MARBLE MOUNTAIN

Contract No. 26.

T. & C. File No. 28092.

Vote 198.—Port Mulgrave, St. Peter's, Irish Cove and Marble Mountain, and other ports on the Bras d'Or Lakes, steam service between—

1921-22 ..... $8,000
1922-23 8,000

Contractors.—The Richmond Steamship Company, of Sydney, N.S.

Date of Contract.—May 29, 1922. *Duration of Contract.*—From the opening to the close of navigation, 1922.

Service and Ports of Call.—Two full round trips each week between Port Mulgrave, Poulamond, Grandique, River Bourgeois, St. Peter's, Johnston's Harbour, Irish Cove and Grand Narrows; and four full round trips each week between Grand Narrows and Marble Mountain, two of which each week are to extend to West Bay. Provided that calls at West Bay shall not be required unless or until a wharf is provided at that point.

Government Wharves.—Steamers must call whenever possible.

Subsidy.—$8,000 per annum, payable in July, October, December and at the close of the service.

Mails.—To be carried free.

DISTANCES

		Miles
Grand Narrows to	Marble Mountain	18
"	West Bay	31
"	Irish Cove	11
"	Johnston's Harbour	19
"	St. Peter's	31
"	Grandique	44
"	Mulgrave	65

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Richmond	112·5	18	8·25	105	162	75	100	21	9	Sydney	1905	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock carried	Mails	Subsidy paid
						$ cts.
1914	197	1,250	475	10	Nil	6,500 00
1915	208½	1,360	467	15	Nil	6,500 00
1916	233	1,390	483	23	Nil	6,500 00
1917	214	1,680	585	18	Nil	6,500 00
1918	212	1,580	700	35	Nil	8,500 00
1919	172	970	430	6	Nil	5,979 96
1920	183	1,220	710	12	Nil	6,207 64
1921	191	610	334	9	Nil	6,500 00
1922		In 480	267	8	Nil	
	182	Out 325	240	6	Nil	8,000 00
Total	...	805	507	14	Nil	

PICTOU, SOURIS AND THE MAGDALEN ISLANDS

Contract No. 12.

T. & C. File 26863.

Vote 199.—Pictou, Souris and the Magdalen Islands, steam service between—

1922–23	$24,000
1923–24	24,000

Contractor.—Wm. C. Leslie (Magdalen Transports, Ltd.).

Date of Contract.—March 8, 1921. *Duration of Contract.*—From the opening of navigation, 1921, to the close of navigation, 1925. This contract has been cancelled.

Service and Ports of Call.—A regular semi-weekly service between Pictou, Souris and the Magdalen Islands, as follows:—

(*a*) First trip each week: From Pictou, calling at Souris, Etang du Nord, Amherst, Grindstone and Pointe Basse, returning to Grindstone, Amherst, Souris and Pictou.

(*b*) Second trip each week: From Pictou, calling at Souris, Amherst, Grindstone, Pointe Basse and Grand Entry, returning to Pointe Basse, Grindstone, Amherst, Souris and Pictou.

(*c*) Four trips each year are to be made, in place of four of the regular semi-weekly trips aforesaid, from Pictou to Souris, West Point (to land Amherst mails), Etang du Nord, Bryan Island, Pointe Basse, Grindstone, Amherst, Souris and Pictou.

Subsidy.—$24,000 per annum, payable as follows: On July 1 and October 1 in each year, $8,000; and on the close of navigation in each year, $8,000.

Mails.—To be carried free.

DISTANCES

	Miles
Pictou to Souris	50
Souris to Etang du Nord	76
Etang du Nord to Amherst	33
Amherst to Grindstone	9
Grindstone to Pointe Basse	4
Pointe Basse to Grand Entry	15
Total	187
Etang du Nord to Bryan Island	50

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
R. W. Hendry	139	28	11	352	439	500	16 and 24	49	10	Gilbert's Cove, N.S.	1921	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Mails		Subsidy Paid
					Lock Bags	Tied Sacks	
							$ cts.
1914	61	1,380	4,802	811	2,788	921	18,000 00
1915	60	633	8,462	174	2,505	1,297	17,769 23
1916	52	1,714	6,591	26	2,267	1,239	14,000 00
1917	54	1,913	8,860	69	2,966	505	17,769 23
1918	43	1,379	4,932	130	3,083	1,393	18,000 00
1919	53	1,651	9,500	119	2,497	1,469	18,000 00
1920	54½	1,952	5,980	169	2,544	1,066	16,934 45
1921	65	1,328	5,925	Nil	3,341	1,056	24,000 00
1922	59	In 665	1,541	1	1,510	12	
		Out 648	4,839	7	1,217	1,344	24,000 00
	Total	1,313	6,380	8	2,727	1,356	

QUEBEC, NATASHQUAN AND HARRINGTON

Vote 200.—Quebec, Natashquan and Harrington and other points on the North Shore of the Gulf of St. Lawrence, steam service between—

1922–23	$85,000
1923–24	$5,000

T. & C. File 28077.

Contract No. 35.

Contractors.—The Clarke Steamship Co., Ltd., Quebec, P.Q.

Date of contract.—April 7, 1922. *Duration of contract.*—From the opening of navigation in 1922 to the close of navigation in 1931.

Service and ports of call.—One round trip each week, during the season of navigation, from Quebec to Natashquan, calling each way at Godbout, Franquelin River, Trinity Bay, Egg Island, Pentecost, Clarke City, Seven Islands, Riviere aux Graines, Sheldrake, Thunder River, Magpie, St. John River, Longue Pointe, Mingan, Esquimaux Point, Piastre Bay and Natashquan, extending every alternate trip, (that is to say, each trip by the smaller steamer) to Harrington and Bras d'Or Bay, calling at way ports, and calling one way at a port to be named by the Minister, in the Island of Anticosti, on such trips as are not extended to Harrington and Bras d'Or Bay.

(*a*) Provided that calls shall be made at Les Escoumains, in either direction, whenever there is a reasonable number of passengers or quantity of freight offering to or from that port, that is, when there is at least $150 worth of business per call for the steamer.

(*b*) At the direction of the Minister, the contractors may be permitted to omit from time to time such calls at the above ports as may be deemed advisable, or to call alternately or otherwise at such ports as may be required by the Minister, having in view the public interest, and the efficient despatch of passengers and freight.

Delays.—In order that undue delay to the vessels performing the various services herein mentioned may be avoided, it is agreed that when any such vessel arrives within a reasonable distance off any of the aforesaid ports and anchors, and if no boats come out to load or unload freight within thirty minutes from the time of anchoring, such vessel shall be at liberty, at the Captain's discretion, to heave up her anchor and proceed on her voyage without further delay. Due notice of arrival must be given by steam whistle or other suitable means at the time of anchoring. In case any port is passed by, as provided for by this clause, such action must be reported to the Minister at the time the claim for subsidy for the trip in question is made.

Subsidy.—$85,000 per annum, payable in equal instalments of $21,250, or such proportion thereof as may have been earned, on June 1, August 1, October 1, and on the close of navigation in each year.

Mails.—To be carried free.

DISTANCES

	Miles
Quebec to Franklin	192
Franklin to Godbout	17
Godbout to Trinity Bay	17½
Trinity Bay to Egg Island	16
Egg Island to Pentecost	9½
Pentecost to Shelter Bay	19
Shelter Bay to Clarke City	25½
Clarke City to Seven Islands	4½
Seven Islands to Riviere aux Graines	50
Riv. Graines to Sheldrake	13
Sheldrake to Thunder River	6
Thunder River to Magpie	14
Magpie to St. John River	6
St. John River to Anticosti	39
Anticosti to Long Point	41
Long Point to Mingan	6
Mingan to Esquimaux Point	18
Esquimaux Point to Piastre Bay	36
Piastre Bay to Natashquan	36
Natashquan to Harrington	115
Harrington to Mutton Bay	39
Mutton Bay to St. Augustin	35
St. Augustin to Old Fort Bay	24½
Old Fort Bay to Bonne Esperance	8
Bonne Esperance to Bradore Bay	22
Total	809½

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
North Shore	206	28½	13	480	811	500	50 and 50	122	11½	Newcastle	1896	Steel
Labrador	125	23·9	13·6	174	316	200	32	61	9½	Lanzon	1918	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Mails		Subsidy Paid
					Lock Bags	Tied Sacks	
							$ cts.
1914	28½	2,285	9,339	Nil	1,946	Nil	25,983 35
1915	32	3,081	4,669	Nil	2,737	Nil	28,000 00
1916	32	4,013	3,383	Nil	2,247	Nil	28,000 00
1917	14	1,114	1,711	Nil	2,146	Nil	23,666 60
1918	25	773	3,836	47	3,622	49	28,000 00
1919	30	1,215	3,527	67	4,123	35	30,000 00
1920	28	1,959	3,657	71	4,148	Nil	30,000 00
1921	22	2,281	2,948	143	1,128	3,494	50,000 00
1922	33	In 1,154	1,217	28	752	199	
		Out 1,344	3,228	160	857	4,366	85,000 00
	Total	2,498	4,445	188	1,609	4,565	

QUEBEC, MONTREAL AND GASPE

Vote 201.—Quebec or Montreal and Gaspe, and ports on the South Shore of the Gulf of St. Lawrence, steam service between—

1922–23	$30,000
1923–24	30,000

Contract No. 81.

File No. 28078.

Contractors.—The Clarke Steamship Co., Ltd., of Quebec, Que.

Date of Contract.—October 5, 1922. *Duration of Contract.*—From August 1, 1922, to the close of navigation in 1931.

Service and ports of call.—A regular fortnightly service during the season of navigation in each year from Quebec (or Montreal, at the contractors' option,) to Gaspe, calling each way at—

Matane, Cap Chat, Ste. Anne des Monts, Mont Louis, Grande Vallee, Chlorydormes, St. Joachim, Petit Cap, Little Fox River, Fox River, Griffin Cove, Anse a Louise, Grand Greve and Douglastown, and calling once on each round voyage either on up or down trip, at Mechins, Marsouins, Martin River, Claude River, St. Antoine, Magdalen, Petite Vallee, Pointe Fregate, St. Yvon (Pointe Seche), Grand Etang, Anse a Valeau and Pointe Jaune; provided that until the close of navigation in 1922, the said fortnightly service shall be continued between Gaspe Basin and Paspebiac, calling each way at Malbaie, Perce, Cape Cove, Grand River, Chandler, Newport and Port Daniel. On and after the opening of navigation in 1923, the Eastern terminus of the subsidized service shall be Gaspe; provided that the subsidized steamer shall have the right to proceed to other ports if conditions warrant.

Subsidy.—$30,000 per annum, payable in instalments on June 1, August 1, October 1, and on the close of navigation in each year.

Mails.—To be carried free.

DISTANCES

	Miles
Montreal to Quebec	139
Quebec to Mechins	222
Mechins to Cap Chat	13
Cap Chat to Ste. Anne des Monts	9
Ste. Anne des Monts to Martin River	15
Martin River to Claude River	11
Claude River to Mont Louis	6½
Mont Louis to St. Antoine	7½
St. Antoine to Lit. Madeleine	5
Lit. Madeleine to Cap Madeleine	4
Cap Madeleine to Grand Valley	6½
Grand Valley to Pte. Vallée	3½
Pte. Vallée to Pte. Frégate	4
Pte. Frégate to Chlorydomes	5½
Chlorydomes to Pte. Sèche	2½
Pte. Sèche to Grand Etang	3
Grand Etang to Anse à Valeau	6½
Anse à Valeau to Pte. Jaune	3
Pte. Jaune to Little Fox River	3
Little Fox River to Fox River	3

DISTANCES—*Concluded.*

	Miles
Fox River to Griffin Cove	5½
Griffin Cove to L'Anse à Louise	4
L'Anse à Louise to Cap Rosier	2
Cap Rosier to Grant Grève	11
Grand Grève to Douglastown	5
Douglastown to Gaspé Basin	8½
Gaspé Basin to Mal Bay	28
Mal Bay to Percé	6
Percé to Cape Cove	8
Cape Cove to Grande Rivière	9
Grande Rivière to Chandler	5
Chandler to Newport	7
Newport to Port Daniel	11
Port Daniel to Paspebiac	19
Total	591½

DESCRIPTION OF VESSELS EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed, knots	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Gaspesia	214·6	32·1	13·7	520	1,014	1,200	50 and 50	184	12½	Rostock	1909	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mail	Subsidy Paid
						$ cts.
1914	15	1,523	3,275	Nil	Nil	8,500 00
1915	15	1,233	3,562	Nil	Nil	8,500 00
1916	31	1,224	3,921	Nil	Nil	8,500 00
1917	9	373	641	Nil	Nil	5,100 00
1918	13	166	1,646	Nil	Nil	8,500 00
1919	14	210	3,108	Nil	Nil	14,000 00
1920	*10	839	3,459	Nil	Nil	20,000 00
1921	25½	483	3,930	Nil	Nil	30,000 00
1922 *Brumath*	4	In 63	32	1	Nil	
		Out 144	1,210	5	Nil	7,500 00
	Total	207	1,242	6	Nil	
Gaspesia	13	In 717	1,306	6	Nil	
		Out 573	3,166	4	Nil	22,500 00
	Total	1,290	4,472	10	Nil	

The *Brumath*, a wooden steamer of 1,140 gross tons, operated by La Cie. Gaspé Cotier, of Quebec, divided this service with the *Gaspesia* during 1922, up to August 1, when the *Brumath* was destroyed by fire, and the *Gaspesia* carried on the full service for the remainder of the season, and will continue it until the close of navigation in 1931.

ST. CATHERINE'S BAY AND TADOUSSAC.

Contract No. 24.

T. & C. File No. 28165.

Vote 202.—St. Catherine's Bay and Tadoussac, winter steam service between:—

1922–23	$2,000
1923–24	2,000

Contractor:—E. O. Boulianne, of Tadoussac, P.Q.

Date of contract:—October 11, 1922. *Duration of contract:*—November 15, 1922 to May 15, 1923.

Service:—Two round trips each day (except Sundays)

Ports of call:—St. Catherine's Bay and Tadoussac.

Subsidy:—$2,000 for the winter season, payable in November, January, March and May.

Mails:—To be carried free.

Distance:—St. Catherine's Bay to Tadoussac.....2 miles.

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions		Tonnage			Passenger Accommodation	Speed miles	Built		
	Length	Breadth	Net	Gross	Capacity			At	In	Of
	Ft	Ft								
St. Paul	35	12	6	10	6	20	8	....	1915	Wood

TRAFFIC RETURNS

Period	No. of Trips run	No. of Passengers carried		Pounds of Freight carried	Live Stock	Bags of Mail	Subsidy Paid
							$ cts.
Nov. 15 to Nov. 30, 1922...	31	In	8	200	Nil	51	
		Out	6	2,350	2	9	500 00
	Total		14	2,550	2	60	

These are the only traffic returns available so far.

ST. JOHN AND ST. ANDREWS, N.B.

Contract No. 41.

T. & C. File No. 28102.

Vote 203.—St. John, N.B., and St. Andrews, N.B., calling at intermediate points, steam service between—

1922–23	$4,000
1923–24	4,000

Contractors.—The Maritime Steamship Company, Ltd., of Black's Harbour, N.B.

Date of Contract.—April 3, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—A regular service between St. John and St. Andrews, calling at Dipper Harbour, Black's Harbour, Back Bay, Lêtete, Deer Island and St. George.

One round trip per week is to be run throughout the year, as follows:—

(*a*) Leave St. John for St. Andrews on Tuesday mornings, calling at Dipper Harbour, Beaver Harbour, Black's Harbour, Back Bay or Lêtete, Deer Island and Red Store or St. George.

(*b*) Returning leave St. Andrews for St. John on Thursday mornings, calling at Lêtete or Back Bay, Black's Harbour, Beaver Harbour and Dipper Harbour.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$4,000 per annum, payable as follows: On July 1, October 1, January 1, and April 1, $1,000 each.

Mails.—To be carried free.

DISTANCES

	Miles
St. John to Dipper Harbour	19
" Beaver Harbour	36
" Black's Harbour	42
" Lord's Cove	50
" Back Bay	55
" Lêtete	58
" St. George	68
" St. Andrew's	80

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Connors Bros.	97	21·6	9	49	133	150	197	30	8	Shelburne, N.S.	1904	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried	Tons of Freight Carried	Live Stock	Mails		Subsidy Paid
					Lock Bags	Tied Sacks	
							$ cts.
1914	48	1,121	5,436	Nil	200	Nil	4,000 00
1915	50	1,276	5,884	Nil	200	6	4,000 00
1916	52	1,275	6,846	Nil	208	12	4,000 00
1917	52	1,289	5,719	Nil	184	22	4,000 00
1918	52	1,280	7,039	Nil	498	12	4,000 00
1919	48	1,630	9,169	Nil	418	12	4,000 00
1920	53	1,080	5,760	Nil	425	48	4,000 00
1921	52	894	6,202	Nil	312	Nil	4,000 00
1922	52	In 450	3,097	Nil	156	Nil	
		Out 373	4,448	Nil	156	Nil	4,000 00
Total		823	7,545	Nil	312	Nil	

ST. JOHN AND BEAR RIVER.

Contract No. 45.

T. & C. File No. 28479.

Vote 204.—St. John and Bear River, and other way ports, steam service between—

1922-23	$2,000
1923-24	2,000

Contractors.—The Bear River Steamship Co., Ltd.

Date of Contract.—July 26, 1922. *Duration of Contract.*—April 1, 1922 to March 31, 1923.

Service and Ports of Call.—A regular weekly service between St. John and Bear River, calling on all trips both ways at Victoria Bridge and Digby. In the winter, if ice prevents the steamer reaching Bear River, trips may be terminated at either Victoria Bridge or Digby.

Subsidy.—$2,000 per annum, payable quarterly.

Mails.—To be carried free.

DISTANCES

	Miles
Bear River to Victoria Bridge	4
Victoria Bridge to Digby	4
Digby to St. John	45
Total	53

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Bear River	90	20	8·4	70	103	100	30	16	9	Shelburne	1903	Wood

TRAFFIC RETURNS

Calendar Year	No. of Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mails	Subsidy Paid
						$ cts.
1922.....	37	In Nil Out Nil	895 440	Nil Nil	Nil Nil	1,500 00
	Total	Nil	1,335	Nil	Nil	

ST. JOHN AND BRIDGETOWN

Contract No. 72.

T. & C. File No. 28274.

Vote 205.—St. John and Bridgetown, steam service between—

1922-23	$2,500
1923-24	2,500

Contractors.—The Bridgetown Steamship Company, Ltd., of Bridgetown, N.S.

Date of Contract.—May 11, 1922. *Duration of Contract.*—From the opening to the close of navigation, in 1922.

Service and Ports of Call.—Weekly; making thirty-two round trips during the season of navigation between St. John and Bridgetown, calling each way at Ray's Creek, Tupperville and Round Hill; and calling fortnightly at Clementsport.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$78.12 for each round trip, not to exceed a total of $2,500 for the season, payable on July 1, October 1, and at close of navigation.

Mails.—To be carried free.

DISTANCES

	Miles
Bridgetown to Upper Granville	5½
Granville to Tupperville	½
Tupperville to Round Hill	7
Round Hill to St. John	57
Total	70

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Valinda	95	21·5	9·3	56	117	60	25	19	9½	Liverpool, N.S.	1911	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mails	Subsidy Paid
						$
1914	35	30	3,845	Nil	Nil	2,500
1915	36	17	2,313	Nil	Nil	2,500
1916	35	29	2,554½	Nil	Nil	2,500
1917	36	28	2,493	Nil	Nil	2,500
1918	34	23	2,404	Nil	Nil	2,500
1919	37	12	2,964	Nil	Nil	2,500
1920	36	14	2,913	Nil	Nil	2,000
1921	33	20	2,932	Nil	Nil	1,500
1922	34	In 16	1,859	Nil	Nil	
		Out 4	975			
	Total	20	2,834	Nil	Nil	2,500

ST. JOHN AND DIGBY

Contract No. 8.

T. & C. File No. 27794.

Vote 206.—St. John and Digby, steam service between—

1922-23 ..... $15,000
1923-24 15,000

Contractors.—The Dominion Atlantic Railway Company, of Kentville, N.S.

(On September 1, 1913, this line passed to the control and ownership of the Canadian Pacific Railway, Montreal, Que.)

Date of Contract.—March 28, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—Full round daily trips (Sundays excepted) from St. John to Digby and return to St. John.

Connection at St. John.—On all trips from Digby to St. John the steamer shall arrive at St. John in ample time for passengers, mails and perishable express goods westward bound to be transferred to the Canadian Pacific Railway afternoon train for Montreal.

In the event of any trip from Digby to St. John or the connection with the westbound trains at St. John being missed owing to stress of weather, upon satisfactory evidence thereof being furnished to the minister, he may direct that no deductions be made from the subsidy.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$15,000, payable quarterly, in July, October, January and April.

Mails.—To be carried free. If during the continuance of this contract other trips are made than as above stated, all mails tendered shall be carried without additional remuneration.

Substitute Steamer.—During the time the *Empress* is off the route for annual overhaul or for other purposes, the contractors shall use their best endeavours to supply a suitable substitute steamer.

Distance.—St. John to Digby, 47 miles.

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Empress	235	34	28	612	1,341	500	450	365	16½	Newcastle-on-Tyne.	1906	Steel

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	Number of Passengers Carried	Tons of Freight Carried	Live Stock	Mails		Subsidy Paid
					Bags	Sacks	
							$ cts.
1914	377	20,957	23,810	1,155	3,443	25,427	19,805 19
1915	312	25,795	22,367	617	3,438	25,186	20,000 00
1916	315	31,109	32,893	569	3,421	26,213	20,000 00
1917	305	27,332	34,772	801	3,344	27,022	19,423 08
1918	304	38,058	29,686	885	3,344	21,600	20,000 00
1919	303½	36,357	25,016	955	3,341	25,516	20,000 00
1920	299	36,569	22,271	788	3,269	21,040	12,083 73
1921	301	33,737	19,081	262	3,311	17,740	9,647 83
1922	300	In 16,780	5,351	720	2,400	7,952	
		Out 14,785	16,078	78	900	9,911	13,269 83
Total		31,565	21,429	798	3,300	17,863	

ST. JOHN, DIGBY, ANNAPOLIS AND GRANVILLE

Contract No. 37.

T. & C. File 28029.

Vote 207.—St. John, Digby, Annapolis and Granville, steam service between, viz.: along the west coast of the Annapolis Basin—

1922-23	$2,000
1923-24	2,000

Contractors.—The Valley Steamship Co., Ltd., of Granville Ferry, N.S.

Date of Contract.—March 9, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—A weekly service between St. John, N.B., Annapolis Royal and Granville Ferry, N.S., calling on all trips both ways at Victoria Beach and Littlewoods Wharf (opposite Goat Island), and when tide and weather will permit, continuing such trips to Granville Centre, with the privilege on the part of the contractors of further extending the route to Bridgetown, N.S.

During the winter months, in case the ice will not permit the running of the vessel up the Annapolis basin and river, the trip from St. John shall be allowed to terminate at Digby.

Repairs.—The contractors have the right at any time to withdraw the steamer for a period of two weeks, and also in addition thereto for a period not exceeding 14 days for the purpose of inspection or repairs, and may also replace it with another steamer subject to the approval of the minister.

Government Wharves.—Steamer must call whenever possible.

Mails.—To be carried free.

Subsidy.—$2,000 per annum, payable quarterly in July, October, January and April.

DISTANCES

	Miles
St. John to Annapolis	62
St. John to Victoria Beach	45
Victoria Beach to Port Wade	5
Port Wade to Granville Ferry	12
Granville Ferry to Granville Centre	4
Granville Centre to Annapolis	4
Granville Ferry to Annapolis	½
Distance between terminal points via way ports	70

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Granville	112	22	9	49	139	100	38	24	9	Shelburne	1909	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons Freight	Live Stock	Mail	Subsidy Paid
						$ cts.
1914	52	69	3,024	Nil	Nil	1,875 00
1915	50	39	3,079	Nil	Nil	1,961 55
1916	50	77	4,069	Nil	Nil	2,000 00
1917	45	78	3,299	Nil	Nil	1,875 00
1918	44	74	3,976	Nil	Nil	2,000 00
1919	52	51	3,807	Nil	Nil	2,000 00
1920	52	95	3,197	Nil	Nil	2,000 00
1921	50	82	3,992	Nil	Nil	2,000 00
1922	51	In 49	2,752	Nil	Nil	
		Out 41	775	Nil	Nil	2,000 00
	Total	90	3,527	Nil	Nil	

ST. JOHN AND PORTS ON THE BAY OF FUNDY AND MINAS BASIN

Contract No. 71A.

T. & C. File 27944.

Vote 208.—St. John, N.B., and ports on the Bay of Fundy and Minas Basin, steam service between—

1922-23	$8,500
1923-24	8,500

Two contracts are entered into under this vote:—(*a*) St. John Steamship Co., (*b*) Bay of Fundy and Minas Basin SS. Co..

(*a*) St. John Steamship Co.

Contractors.—The St. John Steamship Co., Ltd., of St. John, N.B.

Date of Contract.—February, 15, 1922. *Duration of Contract.*—From the opening to the closing of navigation, 1922.

Service and Ports of Call—

(*a*) A regular service every two weeks between St. John, N.B.,and Windsor, N.S., calling each way at Canning, Wolfville, and Cheverie.

(*b*) A regular service every two weeks, alternating with the service specified in section (*a*) aforesaid, between St. John, N.B., and Maitland, N.S., calling at Spencer's Island, Parrsboro', Noel and Bass River.

(*c*) The minimum number of trips to be made during the season of navigation shall be 28.

Subsidy.—$5,000 per annum, payable in equal instalments on July 1, October 1, and at the close of navigation, on the basis of $178.57 for each round trip.

Mails.—To be carried free.

DISTANCES

	Miles
St. John to Spencer's Island	62
Spencer's Island to Parrsboro	24½
Parrsboro' to Bass River	26
Bass River to Maitland	13½
Maitland to Noel	13
	139
St. John to Spencer's Island	62
Spencer's Island to Canning	28
Canning to Wolfville	7½
Wolfville to Cheverie	9½
Cheverie to Windsor	13
	120

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Glenholme....	102·5	30·5	9·7	125	233	.....	7	24	8½	Yarmouth, N.S.	1919	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried		Tons of Freight Carried	Live Stock	Mail	Subsidy Paid
							$ cts.
1919.....	15	36		3,125	Nil	Nil	3,500 00
1920.....	21	32		2,550	Nil	Nil	3,749 97
1921.....	27	47		3,025	Nil	Nil	3,455 61
1922.....	24	In	15	600	Nil	Nil	
		Out	21	2,400	Nil	Nil	4,285 69
	Total.....	36		* 3,000	Nil	Nil	

* Approximate.

(*b*) Bay of Fundy and Minas Basin Steamship Co., Ltd.

Contract No. 71.

T. & C. File No. 28356.

Contractors.—The Bay of Fundy and Minas Basin Steamship Co., Ltd., of Margaretville, N.S.

Date of Contract.—June 10, 1922. *Duration of Contract.*—From the opening to the closing of navigation in 1922.

Service and Ports of Call.—A regular weekly service between St. John, N.B., and Margaretville, N.S., calling each way at Hampton, Port Lorne, Port George, Harbourville, and Morden and calling every two weeks at Scott's Bay and Port Williams. Not less than 32 round trips shall be made during the season of navigation.

Subsidy.—$3,500 per annum, payable in four equal instalments, on July 1, September 1, November 1, and at the close of navigation, on the basis of $109.37 per round trip.

Mails.—To be carried free.

DISTANCES

	Miles
St. John to Hampton	40
Hampton to Port Lorne	5
Port Lorne to Port George	7
Port George to Margaretville	6
Margaretville to Mordea	6
Morden to Harbourville	7
Harbourville to Hall's Harbour	12
Hall's Harbour to Scott's Bay	12
Scott's Bay to Port Williams	30
Total	125

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Ruby L. II	107	23	9	117	200	150	20	24	9	Margaretville	1921	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy paid
						$ cts.
1914	100	436	8,874	Nil	Nil	7,547 17
1915	76½	190	6,530	Nil	Nil	5,914 83
1916	93	261	7,305	Nil	Nil	6,122 52
1917	83	121	6,648½	Nil	Nil	4,919 88
1918	27	52	2,440	Nil	Nil	2,249 91
1919	37	90	3,090	Nil	Nil	3,000 00
1920	No contract.					
1921	31	46	3,490	Nil	Nil	2,268 75
1922	32	In 33	2,200	Nil	Nil	
		Out 27	1,090	Nil	Nil	3,499 70
	Total	60	3,290	Nil	Nil	

ST. JOHN AND WEDGEPORT.

Contract No. 58.

T. & C. File No. 28049.

Vote 209.—St. John and Wedgeport, steam service between—

1922-23	$5,000
1923-24	5,000

Contractor.—D. D. LeBlanc, of Wedgeport, N.S.

Date of Contract.—May 23, 1922. *Duration of Contract.*—For the season of navigation, 1922.

Service and Ports of Call.—Three round trips a month, throughout the season of navigation, between St. John, N.B., and Wedgeport, N.S., calling each way at Cape St. Mary and Port Maitland.

Subsidy.—$5,000 for the season, payable in three instalments.

Mails.—To be carried free.

DISTANCES

	Miles
St. John to Cape St. Mary	72
Cape St. Mary to Port Maitland	7
Port Maitland to Wedgeport	34
Total	113

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Madeline A	71	18	7	27	.....	.....	Nil	.....	8	Mahone Bay, N.S.	1912	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers Carried	Tons of Freight Carried	Live Stock	Mails	Subsidy Paid
						$ cts.
1922	25	In Nil Out Nil	355 Nil	Nil	Nil	5,000 00
	Total	Nil	355			

ST. JOHN, WESTPORT AND YARMOUTH AND OTHER WAY PORTS

Contract No. 42A.

T. & C. File No. 26984.

Vote 210.—St. John, Westport and Yarmouth and other way ports, steam service between—

1922–23	$10,000
1923–24	10,000

Contractors.—Hugh Cann & Son, Ltd., of Yarmouth, N.S.

Date of Contract.—March 2, 1922. *Duration of Contract.*—April 1, 1922, to March 31, 1923.

Service and Ports of Call.—Seventy round trips are to be made during the period covered by the contract, between St. John, Westport and Yarmouth, calling on each trip both ways at Freeport and Tiverton, unless ice prevents.

Four round trips are to be made in each of the months of April, November, December, January, February and March; 6 round trips in the month of May; and 8 round trips in each of the months of June, July, August, September and October.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$10,000, payable as follows: $142.86 for each round trip performed, to be paid at the close of June, September, December and March.

Mails.—To be carried free.

DISTANCES

	Miles
St. John to Tiverton	51
Tiverton to Freeport	11
Freeport to Westport	1
Westport to Yarmouth	33
Total	96

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Keith Cann...	120·00	25·8	11·8	176	299	350	28	53	11½	Shelburne, N.S.	1917	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried	Live Stock	Bags Mail	Subsidy paid
						$ cts.
1914	81	959	4,497	Nil	Nil	5,871 18
1915	79½	1,192	5,684	Nil	Nil	6,000 00
1916	79½	1,258	5,723	Nil	Nil	6,000 00
1917	78½	1,290	6,598	Nil	Nil	5,999 70
1918	75½	1,293	11,820	Nil	Nil	9,943 05
1919	78	2,116	11,096	Nil	Nil	10,000 00
1920	76½	2,150	9,443	Nil	Nil	10,000 00
1921	76	1,749	9,123	Nil	Nil	10,000 00
1922	74	In 851	1,941	Nil	Nil	
		Out 870	6,642	Nil	Nil	10,000 00
	Total....	1,721	8,583	Nil	Nil	

SYDNEY AND BAY ST. LAWRENCE

Contract No. 33.

T. & C. File No. 27972.

Vote 211.—Sydney and Bay St. Lawrence, calling at way ports, steam service between—

1922–23	$9,000
1923–24	9,000

Contractors.—The North Shore Steamship Company, Limited, of Sydney, N.S.

Date of Contract.—Feb. 23, 1922. *Duration of Contract.*—From the opening to the close of navigation in the year 1922.

Services and Ports of Call.—From the opening of navigation until June 15, and from October 15 until the close of navigation, one full round trip each week between Sydney and St. Anne's Bay, calling both going and returning at North Sydney, Breton Cove, Englishtown and North River; and one full round trip each week between Sydney and Bay St. Lawrence, calling at North Sydney, Ingonish, Neil's Harbour and Dingwall; returning calling at Neil's Harbour, Ingonish and North Sydney.

From June 15 to October 15 two full round trips each week between Sydney and Ste. Anne's Bay, with calls as above given; and two full round trips each week between Sydney and Neil's Harbour, calling both going and returning at North Sydney and Ingonish, one trip each week to be extended to Bay St. Lawrence, with calls on the outward trip at Dingwall and Cape North. The Friday trip to Ingonish and Neil's Harbour is to be extended to Dingwall during July and August.

Government Wharves.—Steamer must call whenever possible.

Subsidy.—$9,000, payable in instalments in June, August and October, and on the close of navigation.

Mails.—To be carried free.

DISTANCES

	Miles
Sydney to North Sydney	5
" Breton Cove	27
" Englishtown	39
" North River	43
" Ingonish	35
" Neil's Harbour	47
" Aspy Bay	59
" Cape North	70
" Bay St. Lawrence	85

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Aspy	113	25	8·5	99	215	250	250	42	10	Shelburne, N.S.	1910	Wood

TRAFFIC RETURNS

Calendar Year	No. of round trips run	No. of passengers carried	Tons of freight carried	Live stock	Mails	Subsidy paid
						$ cts.
1914	110	1,715	860	45	Nil	6,000
1915	112	1,360	765	130	Nil	6,000
1916	110	1,510	835	45	Nil	6,000
1917	114	1,515	1,120	55	Nil	6,000
1918	113	1,680	1,260	226	Nil	6,000
1919	112	1,860	1,640	70	Nil	6,000
1920	116	1,900	1,535	90	Nil	9,000
1921	111	1,325	1,275	40	Nil	9,000
1922	106	In 950	570	20	Nil	
		Out 1,090	955	5	Nil	9,000
Total		2,040	1,525	25	Nil	

SYDNEY AND WHYCOCOMAGH

Contract No. 34.

T. & C. File No. 28659.

Vote 212.—Sydney and Whycocomagh, steam service between—

1922–23	$7,000
1923–24	13,000

The Steamer *Marion*, which had performed this service for many years, was destroyed by fire in the autumn of 1922. The contractor, J. T. Burchell, of Sydney, N.S., put on the steamer *MacHinery* to finish out the season.

On November 30, 1922, the Department called for tenders for this service, in order to give ample time for preparation for the season of 1923. Tenders were returnable at noon on December 12, 1922, and, by Order in Council of December 15, 1922, the tender of J. T. Burchell of Sydney, N.S., was accepted, for the performance of the service for five years, commencing in 1923, at an annual subsidy of $13,000, with the steamer *St. Andrews*. When the contractor inspected the *St. Andrews* in New York, he found that she was not as suitable as the *Princess*, which he had previously offered to the Government for an annual subsidy of $16,000. He therefore decided, with the approval of the Department, to place the *Princess* on the route at the annual subsidy of $13,000.

Contractor.—James T. Burchell, of Sydney, N.S.

Date of Contract.—December 16, 1922. *Duration of Contract.*—From the opening of navigation in 1923 to the close of navigation in 1927.

Service and Ports of Call.—From the opening of navigation to June 30, and from October 1 to close of navigation, two full round trips each week; and from July 1 to September 30, three full round trips each week, between Sydney and Whycocomagh, calling both going and returning at North Sydney, Big Bras d'Or, New Campbellton, Boularderie, Ross Ferry, Big Harbour, Kempt Head, Baddeck, Washabuck Centre, Nyanza and Little Narrows.

It is agreed that if, upon due and proper investigation, the Minister should deem it advisable that three round trips a week should be performed after September 30, the contractors will perform the said three round trips each week, until otherwise instructed by the Minister.

Subsidy.—$13,000, payable at the rate of $162.50 per trip for each round trip performed up to maximum of 80 round trips.

Government Wharves.—Steamer must call whenever possible.

Mails.—To be carried free.

DISTANCES

	Miles
Sydney to North Sydney	5
North Sydney to Big Bras d'Or	20
Big Bras d'Or to New Campbellton	2
New Campbellton to Boularderie Centre	7
Boularderie Centre to Ross Ferry	7
Ross Ferry to Big Harbour	2
Big Harbour to Kempt Head	6
Kempt Head to Baddeck	5
Baddeck to Washabuck	5
Washabuck to Nyanza	6
Nyanza to Little Narrows	10
Little Narrows to Whycocomagh	7
Total	82

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Marion	150	26·5	8	269	478	100	400	49	12	New York	1876	Wood
Princess	112	28	10·3	170	251	150	500	96	13	Brooklyn, N.Y.	1913	Steel

The *Marion* was destroyed by fire on October 31, 1922.

TRAFFIC RETURNS

Calendar Year	No. of round trips run	No. of passengers carried	Tons of freight carried	Live stock	Mails	Subsidy paid
						$ cts.
1914	78	5,879	1,554	5,485	Nil	3,000 00
1915	80	5,773	1,556	4,081	Nil	3,000 00
1916	81	6,655	1,794	3,631	Nil	3,000 00
1917	79	6,399	2,029	2,674	Nil	3,000 00
1918	79	4,756	2,319	2,848	Nil	3,000 00
1919	81	6,976	4,042	2,621	Nil	4,000 00
1920	82	5,073	2,542	2,568	Nil	4,000 00
1921	80	4,190	3,059	1,892	Nil	4,000 00
1922	79	In 1,000	1,000	500	Nil	
		Out 1,500	1,250	100	Nil	4,923 50
		2,500	2,250	600	Nil	

SYDNEY, BRAS D'OR LAKES, AND CAPE BRETON PORTS

Contract No. 77.

T. & C. File 27971.

Vote 213.—Sydney and Bras d'Or Lake Ports, and Ports on the West Coast of Cape Breton, steam service between—

1922–23	$14,000
1923–24	14,000

Contractors.—The Coastal Steamship Company, Ltd., of Sydney, N.S.

Date of Contract.—Feb. 23, 1922. *Duration of Contract.*—From the opening to the close of navigation, 1922.

Service and Ports of Call.—Weekly, from Sydney to North Sydney, Baddeck, Grand Narrows, East Bay, Big Pond, Irish Cove, Johnston's Harbour, Marble Mountain, St. Peter's, Grandique, Poulamond, L'Ardoise, Arichat, Mulgrave, Hawkesbury, Hastings, Port Hood, Margaree, Grand Etang and Chéticamp, returning to Sydney and proceeding thence to Gabarous, calling at Port Morien, Main-à-dieu and Louisburg.

(*a*) If it be found impossible for the *Bras d'Or* to make weekly calls at Port Morien, Main-à-dieu, Louisburg and Gabarous, a reduced service to the said ports may be performed. The contractors, however, shall use their best endeavours to perform a weekly service to the said ports, if time permits.

Subsidy.—$14,000 per annum, payable in instalments on July 1, October 1, and at the close of navigation.

Mails.—To be carried free.

DISTANCES

		Miles
Sydney to North Sydney		5
North Sydney to Baddeck		55
Baddeck to Grand Narrows		20
Grand Narrows to East Bay		25
East Bay to Big Pond		7
Big Pond to Irish Cove		8
Irish Cove to Johnston's Harbour		10
Johnston's Harbour to Marble Mountain		16
Marble Mountain to St. Peter's		20
St. Peter's to Grandique		12
Grandique to Poulamond		3
Poulamond to L'Ardoise		10
L'Ardoise to Arichat		18
Arichat to Mulgrave		20
Mulgrave to Hawkesbury		2
Hawkesbury to Hastings		3
Hastings to Port Hood		25
Port Hood to Margaree		40
Margaree to Grand Etang		8
Grand Etang to Chéticamp		9
		316
Sydney to Port Morien	32	
Port Morien to Main-à-dieu	14	
Main-à-dieu to Louisburg	15	
Louisburg to Gabarous	13	
	74	390

DESCRIPTION OF VESSEL EMPLOYED

Name	Dimensions			Tonnage			Passenger Accommodation	N. H. P.	Speed	Built		
	Length	Breadth	Depth	Net	Gross	Capacity				At	In	Of
	Ft.	Ft.	Ft.						Knots			
Bras d'Or...	128	28	9	136	371	400	250	71	13	Mahone Bay, N.S.	1919	Wood

TRAFFIC RETURNS

Calendar Year	No. of Round Trips run	No. of Passengers carried	Tons of Freight carried		Live Stock	Mails		Subsidy paid
			Weight	Measurement		Lock Bags	Tied Sacks	
								$ cts.
1919	36	45	1,825	Nil	Nil	Nil	Nil	8,420 64
1920	35	1,060	3,400	Nil	Nil	Nil	Nil	14,000 00
1921	34½	925	2,378	Nil	225	Nil	Nil	14,000 00
1922	35	In 520	447	Nil	265	Nil	Nil	
		Out 405	2,140	Nil	Nil	Nil	Nil	14,000 00
Total		925	2,587	Nil	265	Nil	Nil	

SUPERVISION OF SUBSIDIZED STEAMSHIP SERVICES

Vote 214.—Expenses in connection with the supervision of Subsidized Steamship Services—

1922-23	$4,000
1923-24	4,500

By Order in Council of April 10, 1912, Mr. W. E. Tupper, of Digby, N.S., was appointed Supervising Officer of Subsidized Steamship Services. His salary is $2,760 per annum, and he is allowed the usual travelling and other contingent expenses. The title of this position has been changed to "Inspector of Subsidized Steamships."

In December, 1916, Mr. Tupper enlisted for active service overseas. He returned to Canada in 1918, and resumed his position as supervising officer on January 1, 1919.

The Inspector's Annual Report is as follows:—

DIGBY, N.S. January 18, 1923.

F. C. T. O'Hara, Esq.,
Deputy Minister, Trade and Comerce,
Ottawa.

Dear Sir:—

I beg to submit my report on Subsidized Steamship Services for the year ending December 31, 1922.

During the year thirty services were inspected. The steamers performing the various services were with few exceptions adequate to requirements, both in respect to passenger accommodation and cargo capacity, and the food and service were satisfactory.

Although complaints are of course inseparable from all branches of public service, it is gratifying to note that comparatively few complaints were received last year in regard to irregularities of service.

During the year two new services were subsidized. These were the St. John and Wedgeport, and the Mainland and Islands of Miscou and Shippegan services.

St. John and Wedgeport.—Early in the spring, Mr. D. D. LeBlanc, of Wedgeport, N.S., applied for a subsidy for the SS. "Madeline A", for the performance of a service consisting of three round trips a month, during the season of open navigation, between St. John, N.B., and Wedgeport, N.S., calling both ways at Cape St. Mary and port Maitland. A thorough inspection of the districts proposed to be served resulted in the application receiving favourable consideration, and a subsidy of $5,000, was granted. In view of the fact that the districts embracing the Nova Scotia ports of call are in particular need of this service during the early spring months, it is unfortunate that conditions were such that it was impossible for the "Madeline A." to commence her trips until the middle of May. However, should the contract be renewed for 1923, arrangements have been made to place the steamer on the route on or about the first of April.

Mainland and the Islands of Miscou and Shippegan.—Last May application was made by the Gloucester Navigation Co. Ltd., of Shippegan N.B., for a daily service, except Sunday, between the mainland and Miscou and Shippegan Islands. When the service was inspected it was found that the contractors had, without permission from this Department, substituted a small gasoline vessel, the "En Avant", for the SS. "Beaver", the boat stipulated in the contract. Trade conditions proved to be such, however, that we were able to approve of the substitution, providing that in the event of the contract being renewed for 1923, a larger and more adaptable vessel were procured. The contractors thereupon agreed to build a new boat, following certain specifications outlined by this Department, and it is expected that next year the service will be performed by a steamer which will prove entirely satisfactory.

During the year substitution of steamers in the case of three services was effected. These were as follows:—

Charlottetown and Pictou.—The contract for this service was awarded to the Georgetown Steamship Co., of Pictou, N.S., which placed the SS. "Magdalen" on the route. It is considered that this steamer proved, generally speaking, more suitable than the SS. "Constance", which, during the previous year, performed the service for a few months.

Pictou, Montague, Murray Harbour and Georgetown.—At the close of the season of 1921, the contractors permanently withdrew their steamer from the route. Partly in consequence of this fact, and partly due to the fact that there seemed to be no other vessel available, this service was not reopened until late in the summer, when the application of the LaHavre Steamship Co. of West LaHave, N.S., which offered the SS. "Tussle", was accepted. Subsequent to the inauguration of the car ferry between P.E.Island and the mainland, there seems to be considerable doubt whether there is sufficient traffic over the route to justify the continuance of the service.

Quebec, Montreal and Paspebiac.—In my annual report for 1921, I referred briefly to the very unsatisfactory condition of this service since the sinking of the SS. "Lady of Gaspé". It is with extreme satisfaction therefore

that I am able to report the excellent service furnished last year by the SS. "Gaspesia". This steamer, purchased early last year by the contractors, the Clarke Steamship Co. of Quebec, is most excellently adapted in every respect to the route. This vessel has a carrying capacity of 1200 tons and passenger accommodation for fifty first-class and fifty-six steerage. The speed of the "Gaspesia"—12½ knots—permitted last year of extending the service, without additional subsidy, to Charlottetown and Summerside, in P.E. Island. This has proved of great benefit to these Island ports, particularly Summerside, which had for several years previously been deprived of direct steamship connection with Montreal and Quebec.

Sydney and Whycocomagh.—On October 31, the SS. "Marion" caught fire at Whycocomagh, the western terminus of the route, and was totally destroyed. As there was no other suitable boat available, this Department was compelled to sanction the employment of the "Mac Hinery", a drifter. Although a new contract for the performance of the service next season has not yet been awarded, negotiations are in progress leading to the acceptance of the SS. "Princess". This steamer was inspected recently by an officer of this Department, and it is considered that she will prove a very suitable boat for the service, providing that the owners are willing to effect certain alterations, specified by the Department.

In view of the fact that full traffic returns for the calendar year are unavailable at present, it is impossible to furnish reliable information in respect to the volume of freight and passenger traffic carried by local subsidized steamers, compared with that for 1921. Observation during my inspection trips leads me to believe that although the traffic over a few of the routes exceeded that for the previous year, it will be found that in the great majority of cases a comparison will prove very unfavourable. In regard to this subject, it perhaps is unnecessary to state that nearly all the operations of our subsidized coastal steamships are confined to the coast waters of Nova Scotia and New Brunswick. In these provinces fish and lumbering are the major industries. The fishing industry was not only actively prosecuted, but prices showed a considerable increase over 1921. Although a "clean up" policy was followed last year in the lumbering industry, the total value of exports did not fall very far short of that for the previous year. In view of these facts it may be somewhat difficult to account for the general slackness of passenger and freight traffic over local routes. Notwithstanding the increased trade activity, the conditions seemed to be due to the scarcity of money and the instability of prices. In nearly all cases local subsidized steamship companies depend chiefly upon heavy outward freights. Last year it was particularly noticeable that all the merchants doing business at way ports purchased in very small lots. This fact leads one to believe that we shall see little improvement in conditions affecting our local services until prices become stabilized and until outport merchants are able to collect outstanding accounts.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) W. E. Tupper,
Inspector Subsidized Steamships.

SOME CLAUSES COMMON TO ALL CONTRACTS

NOTE.—Some of the principal sections common to all contracts, and as such hereinbefore frequently referred to, read as follows:—

Proof of Performance of Service to be furnished

The contractors shall furnish and establish at their own expense the necessary agents required for the efficient performance of this contract, and shall with diligence as soon after the completion of each voyage as may be, furnish to the minister full and complete copies of the manifests of the cargoes and list of passengers carried on each voyage, duly certified by the proper officers of customs, and also such other documents, information and evidence as may be reasonably required by the minister to show the volume, extent and value of the trade carried on by the said steamers and the full performance on their part of services, requirements and conditions of this contract, in order to enable him to judge as to whether the terms of this contract have been or are being fully and faithfully carried out and complied with, within the true intent and meaning thereof, and his decision in that respect shall be binding, final and conclusive; and the furnishing of such certificates, documents and evidence as hereinbefore specified shall be a condition, precedent to the payment of the subsidy herein provided for, or any portion thereof, and if in the opinion of the minister all the terms of this contract have not been fully complied with by the contractors, he may deduct from the subsidy otherwise payable such portion thereof as he may deem fit and proper, taking into consideration all the circumstances connected therewith, and the contractors shall at all times during the continuance of this contract well and faithfully abide by and conform to all such requirements as may be made by the minister with regard to the said steamers in the performance of this contract.

Financial Statements

It is further understood and agreed that the contractors, whenever so required, shall furnish to the minister such financial statement or statements as he may desire from time to time respecting all revenues derived from and all expenditures in connection with the conduct of the service herein provided for.

British Subjects

It is further understood and agreed by the contractors, that two-thirds of the total number of officers, engineers, stewards, crew or other employees whatsoever upon the steamships engaged in the performance of the service herein contracted for, shall be British subjects, but the non-observance of this clause shall not constitute a violation of this contract in such individual cases as may from time to time be approved by the minister in writing.

Equipment of Steamers

The steamers to be employed as herein specified shall at all times during the continuance of this contract be fully seaworthy, well-officered, manned, victualled, equipped, provided and furnished, having regard to the service which the contractors have hereby undertaken to perform; and shall have ample and suitable accommodation for the passengers, mails and freight to be carried over the route specified; and shall at all times carry boats and life-saving appliances in compliance with the law, and shall be in all respects subject to the approval of the minister.

Carriage of Mails

The contractors shall during the performance of this contract, convey on each and every trip of the steamers performing the aforementioned services, both on outward and homeward voyages, all such mails as shall be tendered to the proper officers or persons in that behalf on the said steamers by or on behalf or under the direction of the postal authorities of Canada, or those at the terminal port or ports of call herein referred to, and shall deliver all such mails at their proper destination at the terminal port or ports of call above referred to; and the expenses of carrying such mails from the post offices or railway stations to the steamers and from the steamers to the post offices or railway stations at the terminal ports and at the ports of call shall be borne by the contractors, who will be subject to all general and special regulations now or hereafter existing during the continuance of this contract in connection with the postal service. For the conveyance of all such mails no payment shall be made or required, over or beyond the amount of subsidy herein mentioned or provided for.

Accommodation for Mails

The said steamer shall be provided with sufficient and convenient accommodation and protection for all such mails, to the satisfaction of the Honourable the Postmaster General of Canada, for the time being, and the contractor shall further take all reasonable and necessary precautions for the protection of such mails while upon the said steamers or while in the contractor's charge or custody, from loss, damage, or injury, in any way, and the contractors shall be responsible for any loss or damage thereto caused by negligence or want of proper care or accommodation on the part of the contractors, their agents or servants, or on the part of the officers, employees or crew on board the said steamers, and this without regard to any question as to the legal liability of the Postmaster General to the owners of the articles of mail matter contained in such mails for damage or loss sustained in transit.

Definition of the Term "Mails"

The expression "mails" for the purpose of this contract shall be deemed to meanand include all boxes, bags, baskets or packets of or containing letters, post-cards, newspapers, parcels, books, or printed papers, and all other articles which under the Post Office Act and postal regulations for the time being in force are transmissible by post in Canada, without regard to place either of origin or destination, and also all empty bags, empty boxes and other receptacles, stores and articles used or to be used in carrying on the post office service, or which shall ordinarily be sent by or to or from the post office.

No Letters except H. M. Mails to be Carried

The contractors shall not, nor shall any of their agents or servants, or officers or crews of the said steamers receive or permit to be received on board of the said steamers any letters for conveyance other than those contained in His Majesty's mails, or which are or may be privileged by law, nor the mails of any other country, except such as are specified by the Postmaster General of Canada for the time being.

Government Officials to be carried Free of Charge

The Honourable the Postmaster General of Canada, or the Honourable the Minister of Trade and Commerce for the time being, or any inspector or officer of the Post Office Department or the Department of Trade and Commerce who may in the execution of his duty travel in the said steamers, shall be carried free of charge.

Proper Accounts to be Kept

The contractors shall keep full and proper accounts of and in connection with the working of this service, and shall keep such accounts separate and distinct from any other accounts of or connected with other branches of their business; and in any contingency which, in the opinion of the minister, may render such a course necessary, the contractors shall allow any officer or officers named by the minister free access to such accounts and all books, papers and documents connected therewith.

Substitute for Disabled Steamers

It is understood that if the said steamer shall be by peril of the sea or other unavoidable casualty, lost, destroyed or temporarily disabled from performing the voyages herein agreed to be performed according to the true intent and meaning of these presents, the contractors may in such case as soon as reasonably may be, having regard to the circumstances, replace the said steamer by another of equal class, speed, equipment, character and capacity to the satisfaction and approval of the minister in case the said steamer has been only temporarily disabled, and continue the service herein contracted for with such substituted or repaired steamer with as little delay as possible under all circumstances.

Freight and Passenger Tariffs—Proof of Performance of Service to be Furnished

The contractors shall carry on each steamer running under this contract, according to its capacity, on all voyages, all the freight and passengers which may be reasonably offered or obtained, and at tariff rates, both as to passengers and freight, which may be from time to time approved by the minister; and the contractors shall furnish to the minister such documents, information and evidence as may be required by the minister to show the volume, extent and value of the trade carried on by the said steamer, and such customs certificates, documents and evidence as may be necessary or as may be required by the minister to prove the performance of the service herein contracted for, and to enable the minister to judge as to whether this contract is being carefully and faithfully carried out and performed and the furnishing of such certificates, documents, information and evidence, as hereinbefore specified, shall be a condition precedent to the payment of the subsidy herein provided for or any portion thereof.

Deductions from Subsidy—Time-tables to be furnished—Docking Disabled Steamers

Provided however, that it is the true intent and meaning of these presents that no amount or instalment of subsidy shall be payable or be paid at any time, unless it appears to the satisfaction of the minister that up to the time of such instalment becoming due, as herein stipulated, the service herein described and defined has been fully and faithfully performed, and that all provisions and stipulations as to freight and freight rates and dates of sailing have been in all respects faithfully observerd and carried out, according to the true intent and meaning of these presents; and it is understood and agreed to be a further condition of these presents that the contractors shall at least two weeks prior to the first sailing under this contract furnish to the minister time-tables showing the proposed sailings, and upon the same being approved by the minister, they shall be duly advertised in such manner as he may direct; and it is also agreed that in case either of the steamers herein named, or a substituted steamer sanctioned by the minister, does not sail from a terminal port as herein specified within of the date fixed by such time-tables, there shall be deducted from the amount of

subsidy payable for such voyage a sum equal to one-tenth of the amount otherwise payable for the performance of such voyage, and so in proportion for further delays or failure to sail from such terminal port. Provided, however, that the minister may authorize any vessel to sail either at an earlier or a later date than that specified in such time-tables should he for any reason deem it advisable to do so; it being understood and agreed that, in the event of any of the said steamers being at any time so disabled as to be obliged to be docked for repairs, the failure to perform the terms of this contract owing to such accident and for the time reasonably occupied in the repair of the damaged steamer, shall not be taken as a default or breach of the stipulations of this contract, or subject the contractors to deductions as above from the amount of this subsidy, if any, payable for any voyage delayed in consequence of such docking for repairs, but there shall be no claim for, nor payment of any subsidy in respect of any voyage not actually performed.

Publicity of Tariff Charges

The freight and passenger rates charged by the contractors over said route may at any time be required to be approved of by the Minister, whose decision shall be final, and the said freight and passenger rates shall be made available at all times to the public at the head office and the agencies of the contractors.

Calls at Foreign Ports

The steamer employed in carrying out the provisions of this contract shall not on any of its trips call at any foreign port not specified in this contract.

Carrying of nitro-glycerine or dangerous articles

The contractors shall not convey or permit to be conveyed in any steamer while employed in this service any nitro-glycerine or any other article which in the opinion of the Minister shall be considered dangerous.

Subsidy subject to Vote of Canadian Parliament

It is conditioned, declared and agreed that the payment of subsidy, as hereinbefore stipulated, is subject to the amount specified being provided for the purpose by a vote of the parliament of Canada, and that if no amount is voted for the purpose, or if any amount voted has become exhausted in payment thereof, and no further sum is voted for the purpose, this contract or agreement shall terminate and become void and of no effect, and the party of the first part shall not in consequence be held liable to damage.

Minister's Right to Terminate Contract

It is declared to be the true intent and meaning of these presents, that the Minister shall have the right at any time during the continuance of this contract, upon 30 days' notice in writing to the contractors, their successors or assigns, to terminate this contract, and every matter and thing herein contained, if it shall appear to the Minister that there has been any breach on the part of the contractors, their successors or assigns, of any of the covenants, agreements, stipulations or provisions herein contained and entered into on the part of the contractors; and it is declared and agreed that the Minister shall at all times be the sole and final judge as to whether there has been any such breach, and his decision shall be absolute, final and conclusive.

Assignment of Contract

This contract shall not, nor shall any right or interest therein be assigned without the consent in writing of the Minister to such assignment having been first obtained.

Canadian Members of Parliament not Admitted to Share in Contract

It is a condition of these presents that no member of the House of Commons of Canada shall be admitted to any share or part of this contract or agreement nor to any benefit to arise therefrom.

Changes in Contract

The minister may authorize any change or changes in the terms of this contract as may not be inconsistent with the vote providing for the payment of the subsidy.

Minister to be final judge as to full Carrying out of Contract

The minister shall at all times be the judge as to whether the terms of this contract have been or are being fully and faithfully carried out and complied with within the true intent and meaning thereof, and his decision in that respect shall be binding, final and conclusive.

Towing

No towing shall be undertaken by the vessel performing the service specified in this contract, if such towing might interfere in any way with the regular performance of said service, except for the purpose of saving life or assisting vessels in distress, or performing other work of great importance, without the permission of the minister first having been obtained.

Transportation of Trade Commissioners

(Inserted in contracts for ocean services)

The Canadian Trade Commissioners and their wives, children and servants or Canadian Commercial Agents, shall be granted free transportation, meals included, with first-class accommodation and free transportation for their household effects, upon any steamships employed by the contractors in the performance of the contract when requested so to do by the Minister, and when the said Commissioner or Commercial Agent is travelling upon his official duties or being transferred from one official post to another.

Calls at Government Wharves

(Inserted in contracts for local services)

In consideration of the subsidy herein stipulated the contractors agree to call at all Government wharves when such is practicable and when such wharves are available.

Handling of perishable products

(Inserted in contracts for Atlantic ocean services)

The handling, loading, stowing and unloading of any fruit or perishable products carried by the said vessels shall be subject to and under the supervision of any cargo inspector or other officer appointed for that purpose, should the Minister of Agriculture for Canada deem it advisable.

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DOMINION OF CANADA

REPORTS, RETURNS AND STATISTICS

OF THE

WEIGHTS AND MEASURES, ELECTRICITY AND GAS BRANCHES

OF THE

DEPARTMENT OF TRADE AND COMMERCE

FOR THE YEAR ENDED MARCH

1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

REPORT

OF THE

INSPECTION OF WEIGHTS AND MEASURES, ELECTRICITY AND GAS.

To the Honourable
The Minister of Trade and Commerce.

Sir,—I have the honour to submit the annual report on the Inspection of Weights and Measures, Electricity and Gas; also statements in connection therewith for the fiscal year ended March 31, 1922.

F. C. T. O'HARA,
Deputy Minister.

WEIGHTS AND MEASURES INSPECTION SERVICE.

Mr. E. O. Way, Director of Weights and Measures, reports as follows:—

The year 1921-22 has proved somewhat disappointing. Our object is to make the Weights and Measures Inspection Service self-supporting, without inflicting any undue burden or hardship upon trade and industry, but notwithstanding an increase in revenue collected, amounting to $5,034.78, the prevailing business depression and the high freight and express charges on the transportation of our standards and equipment, have nullified our efforts, and left us financially in almost the same position as last year 1920-21. The figures are as follows:—

TOTAL REVENUE COLLECTED.

1920–21.	1921–22.	Increase.
$267,105.62	$272,140.40	$5,034.78

TOTAL EXPENSES.

$307,076.08	$313,982.04	$6,905.96

TOTAL DEFICIT.

$39,970.46	$41,841.64	$1,871.18

In view of the financial depression and the serious falling-off of new production at the factories, the service has done well to maintain its 1921 status. Weights and Measures is a travelling service, and the Dominion is a vast territory to cover. In 1914-15, travelling expenses, which included freight and express charges on the transportation of standards, only amounted to $35,310.12, whilst for the year under report, this item has advanced to $93,323.06. But since 1914, express charges have increased from 53 cents a hundred pounds to $1.15—which means that an officer must pay a minimum charge of $11.50 every time he ships 1,000 pounds of test weights for inspection purposes. When these exactions are reduced, Weights and Measures will make a better showing.

Three hundred thousand dollars seems a large expenditure for Weights and Measures Inspection, but it only averages some $35,000 a year for each province, or less than 5 cents per capita, a small charge for the maintenance of standards in trade and industry and the protection of the public from short weight and measure, when 1 ounce of butter is valued at 2½ cents under present favourable prices.

A general financial statement for the year 1921-22 by districts and provinces will be found in appendix A. As covering the second year under the application of annual inspection, it is encouraging to note that in spite of business depression the very great increase in revenue collected last year has been maintained and slightly exceeded.

The following table gives a summary of the weights, measures, weighing and measuring machines, etc., inspected during the year, of which detailed statements will be found in appendices B and C.

SUMMARY.

——	Submitted.	Verified.	Rejected.	Percentage of rejection.
Weights (Dominion)	89,530	88,919	611	0·68
Weights (Metric)	971	960	11	1·13
Measures of capacity (Dominion)	114,922	114,644	278	0·24
Measures of capacity (Metric)	13	12	1	7·7
Measures of length (Dominion)	13,396	13,322	74	0·5
Milk cans	77,295	77,184	111	0·1
Ice-cream containers	57,227	57,203	24	0·04
Babcock glassware (pipettes)	34,633	33,977	656	1·9
Measuring pumps	17,894	17,243	651	3·6
Weighing machines	156,752	148,801	7,951	5·0
Weighing machines (Metric)	454	418	36	8·6
	563,087	552,683	10,404	

The number of articles inspected shows a decrease of some 60,000 over 1920-21, but this is largely due to the fact that that year, all ice-cream packing cans were inspected for the first time, whilst last year only the new factory production of this class of measure was inspected.

The percentage of rejections is still low, for the same reasons as explained in my report last year, that inspectors make all the adjustments they possibly can, short of mechanical operations.

DAIRY GLASSWARE.

There has also been a considerable drop in the amount of dairy Babcock glassware inspected as compared with 1920-21. Altogether 34,633 pieces were inspected as against 43,318, whilst inspection fees dropped $440.35, from $2,139.95 to $1,699.60. Agriculture, the dairy industry in particular, has not escaped the general depression, but there are signs that there will be a much greater demand for this dairy glassware for the current year, as the Ontario Government has passed legislation whereby all milk and cream shall be bought and sold upon a butter fat basis, involving a compulsory use of these standardised metric bottles and pipettes.

SEIZURES AND PROSECUTIONS.

One hundred and twenty-four (124) seizures of false and unjust machines have been made during the year, and in nine cases only were proceedings taken, three for selling short weight, and six for using unjust machines. Five convictions were obtained with penalties amounting to $65. One case was settled out of court, one was withdrawn and one lapsed.

This remarkable freedom from prosecutions is not to be interpreted as laxity upon the part of the service. The severity practised in the Old World cannot reasonably be applied in Canada, inasmuch as the vast distances of Canada make it so costly and difficult for merchants to secure expert service.

Reasonable commercial accuracy is assured and insisted upon and the same is greatly facilitated by the almost general use of high class machines of beautiful workmanship and by the excellent "service" given to purchasers, particularly in the cities, by the manufacturing and selling organizations. Nearly all defective machines are seized from amongst the poorer foreign section of the population and there is little to be gained by their prosecution. The loss of their machines is usually sufficient penalty and reminder that Canadian laws are to be complied with.

INSPECTION FEES AND CARTAGE.

During the year the retail merchants have reiterated their demand for free inspection, whilst three or four complaints have been lodged against the separate cartage charge.

Weights and Measures Inspection has, for its first object, the protection of the public against dishonest weights and measures, and therefore it is assumed that the merchant should not pay fees. The public do enjoy this protection, but the traders enjoy greater advantages. Amongst these:—

(1.) The dishonest trader is a greater menace to the honest trader than he is to the public, for he practices unfair competition.

(2.) Weighing and measuring machines almost invariably wear against the merchant. That is, he is liable to give excess weights, and his loss from this cause is cumulative. The inspector finds out these faults under his standard tests and probably saves the merchant a steady loss, far exceeding the one inspection fee he pays once a year.

(3.) Nearly every machine goes out of adjustment after a period of use. Inspectors in every case, wherever possible, make the necessary adjustments and by this service save the merchants the considerable expense of calling in a tradesman or of sending his machine away to some repair shop. In other words, the Government inspectors are a "service organisation" of material and economic benefit to the merchants.

It is here that the disputed "cartage charge" is justified. It is the merchants responsibility to see that he does not use an unstamped or an incorrect and unjust machine.

If then the inspector visits the merchant, with his standards, instead of the merchant going to the inspector, the merchant should, as a fair alternative, contribute towards the expense of this facility and service. If the merchants equipment is incorrect and the officer is delayed whilst adjusting the equipment, it is only equitable that the merchant should also pay a charge equivalent to the hourly rate the carter or conveyance is kept standing, such money of course being covered by revenue stamps and deposited to the credit of the Receiver General.

Critics of the cartage charge also claim that it should not be a separate charge but incorporated in the inspection fees. This has been carefully studied for many years, but the advantages of a separate "service" or "cartage" charge is obvious. It can be applied and collected where delay occurs through faulty equipment without discrimination against the careful merchant whose equipment is carefully loodked after and quickly inspected.

ADMINISTRATION AND STAFF.

During the year seven officers have been retired under the Calder Retirement Act, viz: District Inspectors C. W. Johnston of Saskatoon, R. McKay of Winnipeg, Thos. Gallagher of Kingston, Wm. O'Brien of Halifax, and Inspectors

J. A. Daoust, J. E. Boudet and D. Poitras of Montreal, whilst four others have died, viz:—Inspector Chas. E. Roy of Quebec, A. Boucher, E. Dubord of Three Rivers, and Finlay Marshall of London.

All the above vacancies have been filled with returned men through the Civil Service Commission, with the exception of the district inspectorships of Halifax and Kingston. In the interest of economy and efficiency the Kingston District has been abolished and the territory assigned to the adjoining districts of Ottawa and Belleville, whilst Pictou, N.S., another small district, was amalgamated with Halifax, and Mr. O'Brien's position taken by the district inspector of Pictou, transferred to Halifax. Small districts are not and cannot be efficient. The above amalgamations save the expense of two head offices and increase the efficiency of those districts to which the territory has been assigned.

Mention should also be made of the fact that seven of the above vacancies were filled with vocational students selected by the Soldiers Civil Re-Establishment Department in conjunction with the Civil Service Commission. Weights and Measures work is heavy and exacting and does not permit of any major disability, but by careful selection on the part of the S.C.R. officials, we have succeeded in absorbing seven partially disabled men, including one amputation case for purely office work in the Toronto District office. All of these men have given full satisfaction, as have all the returned men who have secured appointments to this service. This is the experience of every district inspector who has a returned man on his staff—their ability and initiative no doubt being largely due to the fact that they are the successful candidates of competitive examinations and take pride in justifying their appointment and position.

To date, twenty-three returned men have been appointed to this service and now constitute twenty per cent (20%) of the staff.

During the year, Weights and Measures Inspection has been extended to the Yukon through the intermediacy of the Royal Canadian Mounted Police. Under special arrangement with that department and the Civil Service Commission, two staff-sargeants have been appointed inspectors of weights and measures, one at White Horse and one at Dawson City, at the nominal salary of $180 per annum, these men reporting to Superintendent R. E. Tucker, of Dawson, who acts as district inspector, ex-officio, without salary. There is not a great deal of work in the Yukon, but it is well that the law should be represented and the protection of Weights and Measures Inspection extended to the community. That the step is justified is borne out by recent demand, that an officer of this service should make an inspection trip through the rapidly progressing Peace River District, Northern Alberta. Discrepancies in weights occur and the parties concerned become suspicious. In self-protection, the honest trader calls for an inspection and a Government certificate certifying to the accuracy of his equipment.

THE METRIC SYSTEM.

The Metric controversy has subsided into silence for the past year. Proponents of this system no doubt regard the present period of business and industrial depression as inimical to the tremendous expense translation to the Metric System would involve. Several Canadian manufacturers of weighing machines have sought an outlet in export trade and many inquiries have been received as to the weights and measures in use in foreign countries—China, Japan, Russia, South America, Cuba for example. All of these countries are classified as Metric—but the manufacturers find that weighing machines are required to be graduated in native weights, which is significant. Japan and China still use the "catti," equal to about 1·33 pounds, or 0·604 kilogramme with its multiples and sub-multiples. Whilst South America still uses the

old Spanish libra, equal to 1·012 pounds, or 0·4605 kilogramme. Weights and measures are largely an expression of nationality and persist with the persistence of the mother tongue.

THE INTERNATIONAL CONFERENCE OF WEIGHTS AND MEASURES.

The month of September, 1921, saw the sixth International Conference of Weights and Measures at the International Bureau of Weights and Measures, Paris, France. The inception of this conference dates back to the early days of the Metric System when the new Metric Standards had to be compared and verified with other national standards. This scientific work was strongly endorsed by the International Geodetic Association (1867), who were feeling and advocating the necessity of a uniform international system of weights and measures.

Whether the new Metric Standards became universal or not, it had become essential that some standards of international reference should be agreed upon and established, and in 1872, the International Bureau of Weights and Measures was established by agreement on the part of the delegates of some thirty nations, to study the situation and to carry on the scientific work of international standardisation.

The functions of the bureau therefore are purely scientific. As a result of its activities, and with the assent of the International Conference, the International metre and kilogramme have been established as the world International Standards of Weight and Measure, under a treaty known as the "Convention du Metre", in relation to which, all other standards now have a known and fixed value.

Notwithstanding English scientists of the day, such as Professor Miller, Sir George Shuckburgh and Capt. Clark, played a prominent part in the early and important scientific comparisons of the standards, the British Government, owing to suspicions of French metric propaganda, did not give adhesion to this "Convention du metre" until 1884. Canada joined the convention in its own right in 1904, being the only overseas Dominion that has done so. As a high contracting State, Canada, with the other powers, makes an annual contribution for the upkeep of the bureau ($246) based upon population and certain constants agreed upon, and enjoys the right of sending a delegate to the conference, which takes place every six years.

As there was nothing of importance in the agenda for last Fall, the Government arranged that the Imperial Government representative, the Deputy Warden of the Standards of the Board of Trade, London, Eng., should also represent Canada, inasmuch as Canadian and Imperial interests are identical as regards weights and measures.

Metric propaganda is no part whatsoever of the functions of the bureau or the conference, so that adhesion to the "Convention du metre" must not be translated as Canadian approval of the compulsory introduction of the Metric System, nor classify Canada as a metric country. The Metric System is legal and permissive in Canada for all purposes and has been so since 1871. Its benefits and advantages, as they may exist, are therefore legally at the service of whosoever finds them of value, the Government service being equipped with Metric Standards with which trade weights and measures of this denomination can be compared.

APPENDIX A.

STATEMENT of Weights and Measures Expenditures and Revenues for the Fiscal Year ending March 31, 1922.

Districts.	Inspectors.	Expenditures.						Revenue.
		Salaries.	Special Assistance.	Rent.	Travelling expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
ONTARIO—								
Belleville	F. D. Diamond	6,990 00	6 00		2,282 94	330 94	9,609 88	7,698 40
Hamilton	J. C. Sealey	12,480 00	367 50		6,185 01	266 79	19,299 30	20,765 78
Kingston	T. Gallagher	2,070 00			1,372 38	42 15	3,484 53	3,796 95
Loadon	A. A. Luton	8,270 00	618 29		4,142 41	222 81	13,253 51	16,981 80
Ottawa	E. H. Hinchey	17,260 00	369 08		5,879 97	122 77	23,631 82	15,903 30
Toronto	J. J. McConvey	12,900 00	367 50		4,044 39	132 76	17,444 65	26,315 45
	ONTARIO	59,970 00	1,728 37		23,907 10	1,118 22	86,723 69	91,461 68
QUEBEC.—								
Montreal	A. A. Bernard	17,189 66	1,387 14	2,000 00	8,535 20	395 32	29,507 32	32,701 75
Quebec	J. W. LeBel	9,810 00	229.66	400 00	8,772 55	378 90	19,591 11	17,408 40
Sherbrooke	O. C. Delorme	6,165 00		500 00	2,496 43	165 50	9,326 93	7,905 15
Three Rivers	J. A. Desilets	5,025 00			3,903 63	186 15	9,114 78	7,783 15
	QUEBEC	38,189 66	1,616 80	2,900 00	23,707 81	1,125 87	67,540 14	65,798 45
NEW BRUNSWICK—								
St. John, N.B.	James Barry	5,530 00			1,606 79	131 04	7,267 83	7,176 70
NOVA SCOTIA—								
Halifax	W. M. Dustan	7,560 00	68.00		3,042 76	514 27	11,185 03	7,221 40
Pictou	W. M. Dustan to 1-7-22	1,125 00	12 00		271 05	52 57	1,460 62	677 20
	NOVA SCOTIA	8,685 00	80 00		3,313 81	566 84	12,645 65	7,898 60
PRINCE EDWARD ISLAND—								
Charlottetown	Ed. Davy	3,180 00			612 44	24 05	3,816 49	1,864 45
MANITOBA—								
Winnipeg	J. B. Attridge	12,020 48	411 65	324 99	10,020 64	356 61	23,134 37	25,843 60
ALBERTA—								
Calgary	Geo. D. Fyfe	7,320 00			4,883 65	304 02	12,507 67	12,766 40
Edmonton	John McLeod	4,425 00			4,469 05	285 54	9,179 59	12,150 65
	ALBERTA	11,745 00			9,352 70	589 56	21,687 26	24,917 05
SASKATCHEWAN—								
Regina	E. B. Lorimer	10,052 58	105 00		8,973 73	324 76	19,456 07	19,113 35
Saskatoon	R. Wallace Actg	5,435 00	1,579 00	220,00	7,615 37	271 44	15,121 41	18,129 30
	SASKATCHEWAN	15,487 58	1,684 00	220 00	16,589 70	596 20	34,577 48	37,242 65
BRITISH COLUMBIA—								
Nelson	Thos. Parker	3,060 00		180 00	2,051 35	129 65	5,421 00	2,622 10
Vancouver	A. H. Dutton	3,360 00	48 00		757 26	985 06	5,150 32	5,034 25
	BRITISH COLUMBIA	6,420 00	48 00	180 00	2,808 61	1,114 71	10,571 32	7,656 35
YUKON TERRITORY	Robert E. Tucker	225 00			35 00	41 63	301 63	98 80

APPENDIX A—Concluded.

STATEMENT of Weights and Measures Expenditures and Revenues for the Fiscal Year ending March 31, 1922.

Districts.	Inspectors.	Expenditures.						Revenue.
		Salaries.	Special Assistance.	Rent.	Travelling expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
EASTERN ELEV SCALE INSPR.	A. A. Bowen	660 00			24 50	91 45	775 95	
WESTERN ELEV. SCALE INSPR.	J. G. White	500 00			126 21		626 21	
EASTERN DIV. SUP.	D. J. McLean	2,220 00			631 60		2,851 60	
WESTERN DIV. SUP.	R. Wallace	1,850 00			586 15	75	2,436 90	
CHIEF INSPECTOR.	E. O. Way					150 81	150 81	
		5,230 00			1,368 46	243 01	6,841 47	
	TOTAL FOR DISTRICTS	166,682 72	5,568 82	3,624 99	93,323 06	5,907 74	275,107 33	269,958 33
General contingencies							1,386 79	
Printing							8,227 29	
Stationery							1,444 14	
Cost of living bonus							27,623 46	
International Bureau of Weights and Measures							193 03	
Weights and Measures, laboratory fees								1,699 60
Weights and Measures, casual revenue								479 09
Grand Total							313,982 04	272,137 02
Gratuities to relatives of deceased officers						1,170 00		
Gratuities superannuation No. 4, Chapter 67, 10-11 George V						2,086 66		
Vote 329 arrears in salary owing to reclassification						720 00		
							3,976 66	

APPENDIX B.

RETURN showing the Number of Weights and Weighing Machines submitted in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division.	Weighing Machines.																Weights.				
	Equal Arms.	Steelyard.	Platform Scales.				Spring Scales.			Computing Scales.		Automatic Scales.		Suspension Scales.	Combined Avdp. and Metric.	Metric.	Avoirdupois.	Troy.	Metric.	Tolerated.	Tobacco.
			Ordinary.	Pitless.	Dial.	Track.	Trade.	Ice and Dairy.	Automatic Slot.	Spring.	All others.	Grain Elevator.	All others.								
Belleville	528	71	2,283	5	37	8	3	.....	5	144	959	.....	.....	2	.....	46	2,671	.....	117	.....	.....
Hamilton	1,213	3,873	9,457	.....	238	39	17	26	73	1	2,352	.....	.....	4	.....	.....	5,836	70	.....	.....	.....
Kingston	247	18	1,436	6	16	1	6	.....	1	278	208	3	.....	.....	.....	1	1,228	.....	.....	.....	.....
London	541	133	3,019	99	187	30	2	9	9	347	4,811	.....	.....	82	.....	68	2,864	.....	87	.....	.....
Ottawa	1,384	40	6,397	3	38	25	24	25	49	1,196	1,397	6	1	14	.....	1	8,422	.....	.....	.....	.....
Toronto	1,018	701	3,634	.....	142	19	77	11	199	469	6,064	2	14	.....	.....	.....	4,184	.....	48	.....	.....
ONTARIO	4,931	4,836	26,226	113	658	122	129	71	336	2,455	15,791	11	15	102	.....	162	25,205	70	252	.....	.....
Montreal	3,253	539	9,450	55	232	48	242	3	315	1,031	4,587	16	56	23	2	32	16,085	53	205	9	311
Quebec	2,393	552	6,039	2	21	14	54	.....	30	38	1,469	.....	23	9	.....	.....	13,936	.....	.....	326	260
Sherbrooke	427	245	5,562	140	8	15	14	.....	29	.....	759	.....	.....	2	.....	33	2,371	.....	100	50	96
Three Rivers	767	134	2,862	12	105	22	26	.....	2	104	405	.....	.....	.....	.....	.....	3,826	.....	.....	.....	.....
QUEBEC	6,840	1,470	23,913	209	366	99	336	3	376	1,173	7,220	16	79	34	2	65	36,218	53	305	385	667
St. John, N.B.	702	115	2,469	.....	11	19	74	.....	11	48	1,360	1	3	7	.....	.....	3,203	.....	.....	.....	.....
Halifax	672	55	2,221	.....	23	29	93	.....	.....	419	1,560	.....	2	12	.....	.....	3,119	.....	.....	.....	.....
Pictou	50	7	233	.....	.....	.....	5	.....	.....	50	182	.....	.....	.....	.....	.....	848	.....	.....	.....	.....
NOVA SCOTIA	722	62	2,454	.....	23	29	98	.....	.....	469	1,742	.....	2	12	.....	.....	3,967	.....	.....	.....	.....
Charlottetown, P.E.I.	144	2	916	3	...	4	19	.....	.....	172	114	.....	.....	5	.....	2	631	.....	.....	.....	.....

Winnipeg, Man.	981	562	6,687	55	162	30	114	7	47	1,938	1,854	18	8	3	.....	36	5,566	.....	39	.....	.....
Regina	501	1,010	5,423	103	67	13	11	.....	4	556	1,092	.....	13	3	.....	.....	2,540	.....	.....	.....	.....
Saskatoon	584	978	4,826	64	20	10	3	19	5	724	848	8	2	3	.....	1	3,254	.....	.....	.....	.....
Saskatchewan	1,085	1,988	10,249	167	87	23	14	19	9	1,280	1,940	8	15	6	.....	1	5,794	.....	.....	.....	.....
Calgary	425	541	3,183	41	69	32	45	.....	20	604	1,176	56	2	1	.....	.....	3,543	.....	.....	.....	.....
Edmonton	317	362	3,220	140	42	17	47	.....	8	417	1,217	68	2	4	.....	234	2,068	.....	375	.....	.....
Alberta	742	903	6,403	184	111	49	92	.....	28	1,021	2,393	124	4	5	.....	234	5,611	.....	375	.....	.....
Nelson	345	87	1,130	15	5	12	25	.....	2	321	341	.....	2	2	.....	.....	1,383	.....	.....	4	.....
Vancouver	108	143	1,437	.....	40	30	184	13	15	510	634	12	8	1	.....	.....	648	.....	.....	.....	.....
British Columbia	453	230	2,567	15	45	42	209	13	17	831	975	12	10	3	.....	.....	2,031	.....	.....	4	.....
Yukon	4	8	49	.....	3	.....	3	.....	.....	5	7	.....	.....	.....	.....	.....	125	.....	.....	.....	.....
Totals	16,604	10,176	81,933	746	1,466	417	1,088	113	824	9,372	33,396	190	136	177	2	454	88,351	123	971	389	667

APPENDIX B—Continued.

RETURN showing the Number of Weights and Weighing Machines verified in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division.	Weighing Machines.															Weights.				
	Equal Arms.	Steelyard.	Platform Scales.				Spring Scales.			Computing Scales.		Automatic Scales.		Suspension Scales.	Combined Avdp. and Metric.	Metric.	Avoirdupois.	Troy.	Metric.	Tolerated.	Tobacco.
			Ordinary.	Pitless.	Dial.	Track.	Trade.	Ice and Dairy.	Automatic Slot.	Spring.	All others.	Grain Elevator.	All others.								
Belleville	527	66	2,208	4	30	7	3	.....	2	139	930	.....	.....	2	.....	46	2,627	.....	117	.....	.....
Hamilton	1,109	3,823	8,494	.....	106	18	9	25	17	1	1,964	.....	.....	1	.....	.....	5,784	63	.....	.....	.....
Kingston	246	17	1,354	6	13	1	5	.....	1	271	198	3	.....	.....	.....	1	1,198	.....	.....	.....	.....
London	538	111	2,781	84	165	20	2	9	6	338	4,743	.....	.....	82	.....	68	2,864	.....	87	.....	.....
Ottawa	1,361	35	6,013	2	29	22	22	25	45	1,143	1,320	5	1	12	.....	1	8,363	.....	.....	.....	.....
Toronto	982	693	3,198	.....	109	8	69	11	152	464	5,792	1	14	.....	.....	.....	4,184	.....	48	.....	.....
ONTARIO	4,763	4,745	24,048	96	452	76	110	70	223	2,356	14,947	9	15	97	.....	116	25,020	63	252	.....	.....
Montreal	3,185	504	8,942	48	189	42	231	3	302	983	4,370	16	56	22	1	32	16,000	53	205	9	311
Quebec	2,377	536	5,889	2	18	14	48	.....	27	31	1,362	.....	23	9	.....	.....	13,834	.....	.....	326	231
Sherbrooke	426	240	5,530	132	7	13	14	.....	29	.....	748	.....	.....	2	.....	33	2,371	.....	100	50	96
Three Rivers	758	132	2,824	12	100	22	21	.....	1	103	394	.....	.....	.....	.....	.....	3,826	.....	.....	.....	.....
QUEBEC	6,746	1,412	23,185	194	314	91	314	3	359	1,117	6,874	16	79	33	1	65	36,031	53	305	385	638
St. John, N.B	700	114	2,403	.....	11	19	74	.....	11	48	1,357	1	3	7	.....	.....	3,198	.....	.....	.....	.....
Halifax	666	53	2,161	.....	16	29	92	.....	.....	409	1,520	.....	2	12	.....	.....	3,091	.....	.....	.....	.....
Pictou	50	7	231	.....	.....	.....	5	.....	.....	50	182	.....	.....	.....	.....	.....	848	.....	.....	.....	.....
NOVA SCOTIA	716	60	2,392	.....	16	29	97	.....	.....	459	1,702	.....	2	12	.....	.....	3,939	.....	.....	.....	.....
Charlottetown, P.E.I.	140	2	868	3	.....	4	19	.....	.....	171	111	.....	.....	5	.....	2	631	.....	.....	.....	.....

Winnipeg, Man.	948	554	6,278	47	116	14	110	7	39	1,761	1,734	17	8	3		36	5,561		39	
Regina	494	997	5,107	55	60	7	11		2	527	1,029		10	3			2,540			
Saskatoon	584	976	4,669	57	18	10	3	19	3	696	824	8	2	3		1	3,251			
Saskatchewan	1,078	1,973	9,776	112	78	17	14	19	5	1,223	1,853	8	12	6		1	5,791			
Calgary	406	533	3,020	37	62	25	43		15	581	1,145	56	2	1			3,413			
Edmonton	298	345	2,847	106	26	8	45		5	356	1,118	68	2	3		198	2,036		364	
Alberta	704	878	5,867	143	88	33	88		20	937	2,263	124	4	4		198	5,449		364	
Nelson	345	87	1,128	15	5	11	25		2	319	341		2	2			1,383			4
Vancouver	108	143	1,413		33	14	179	13	15	505	625	12	8	1			648			
British Columbia	453	230	2,541	15	38	25	204	13	17	824	966	12	10	3			2,031			4
Yukon	4	8	49		3		3			5	7						125			
Totals	16,252	9,976	77,407	610	1,116	308	1,033	112	674	8,901	31,814	187	133	170	1	418	87,776	116	960	389	638

APPENDIX B—Concluded.

RETURN showing the Number of Weights and Weighing Machines rejected in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division.	Weighing Machines.																Weights.				
	Equal Arms.	Steelyard.	Platform Scales.				Spring Scales.			Computing Scales.		Automatic Scales.		Suspension Scales.	Combined Avdp. and Metric.	Metric.	Avoirdupois.	Troy.	Metric.	Tolerated.	Tobacco.
			Ordinary.	Pitless.	Dial.	Track.	Trade.	Ice and Dairy.	Automatic Slot.	Spring.	All others.	Grain Elevator.	All others.								
Belleville	1	5	75	1	7	1			3	5	29						44				
Hamilton	104	50	963		132	21	8	1	56		388			3			52	7			
Kingston	1	1	82		3		1			7	10						30				
London	3	22	238	15	22	10			3	9	68										
Ottawa	23	5	381	1	9	3	2		4	53	77	1		2			59				
Toronto	36	8	436		33	11	8		47	5	272	1									
ONTARIO	168	91	2,178	17	206	46	19	1	113	79	844	2		5			185	7			
Montreal	68	35	508	7	43	6	11		13	48	217			1	1		85				
Quebec	16	16	150		3		6		3	7	107						102				29
Sherbrooke	1	5	32	8	1	2					11										
Three Rivers	9	2	38		5		5		1	1	11										
QUEBEC	94	58	728	15	52	8	22		17	56	346			1	1		187				29
St. John, N.B	2	1	66								3						35				
Halifax	6	2	60		7		1			10	40						28				
Pictou			2																		
NOVA SCOTIA	6	2	62		7		1			10	40						28				
Charlottetown, P.E.I.	4		48							1	3										

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Winnipeg, Man.	33	8	409	8	46	16	4		8	177	120	1																			
Regina	7	13	316	48	7	6			2	29	63		3																		
Saskatoon		2	157	7	2				2	28	24																				
Saskatchewan	7	15	473	55	9	6			4	57	87		3																		
Calgary	19	8	163	7	7	7	2		5	23	31																				
Edmonton	19	17	373	34	16	9	2		3	61	99						1		36		130										
Alberta	38	25	536	41	23	16	4		8	84	130						1		36		162		11								
Nelson			2			1				2																					
Vancouver			24		7	16	5			5	9																				
British Columbia			26		7	17	5			7	9																				
Totals	352	200	4,526	136	350	109	55	1	150	471	1,582	3	3	7	1	36	575	7	11		29										

APPENDIX C.

RETURN showing the Number of Measures of Capacity, Lineal Measures and Miscellaneous submitted in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division	Measures of Capacity				Measuring Devices			Lineal Measures		Miscellaneous							
	Dominion.	Glass	Metric	Milk Cans	Pumps	Measuring Tanks	Meters	Dominion	Metric	Measuregraphs	Moisture Test Scales	Personal Weighing Machines	Ice Cream Containers	Salt Carts	Miner's Attachment	Tipple Scales	Weight O-Meter
Belleville	1,466			18	582			118		4							
Hamilton	11,636			406	972			711		29	2	1					
Kingston	632			6	310			68		3							
London	19,482			19,449	563			2,555		6		4	14,189				
Ottawa	4,721			300	963	1		830		52		3					
Toronto	18,017			41,082	3,082			146		248		20	37,400				
ONTARIO	55,954			64,261	6,472	1		4,428		342	2	34	51,589				
Montreal	28,001			4,599	1,853	14		3,689		13		6					
Quebec	12,879				991			2,214		15							
Sherbrooke	1,673				464			199					10				
Three Rivers	2,838				325	4		488		3			24				
QUEBEC	45,391			4,599	3,633	18		6,620		31		6	34				
St. John, N.B	5,152			1,900	850			53					136				
Halifax	2,297				824	5		65				4	2,696	69	12		
Pictou	258				129			11									
NOVA SCOTIA	2,555				953	5		76				4	2,696	69	12		
Charlottetown, P.E.I	247				230												
Winnipeg, MAN	3,056			1,698	1,595	1		974		116		1	2,242				

Regina	615			2,549	1,303	1	13	284		27					1		
Saskatoon	106				1,042			259		7							
Saskatchewan	721			2,549	2,345	1	13	543		34					1		
Calgary	1,299			1,532	673	1						1			13		
Edmonton	127			51	799	9		4		9			330			15	
Alberta	1,426			1,583	1,472	10		4		9		1	330		13	15	
Nelson	75				194			81		7							
Vancouver	239			705	150	1		49		29		15	200		6		2
British Columbia	314			705	344	1		130		36		15	200		6		2
Totals	114,816			77,295	17,894	37	13	12,828		568	2	61	57,227	69	32	15	2

APPENDIX C—Continued.

RETURN showing the Number of Measures of Capacity, Lineal Measures and Miscellaneous Articles verified in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division	Measures of Capacity				Measuring Devices			Lineal Measures		Miscellaneous							
	Dominion	Glass	Metric	Milk Cans	Pumps	Measuring Tanks.	Meters	Dominion	Metric	Measuregraphs	Moisture Test Scales	Personal Weighing Machines	Ice Cream Containers	Salt Carts	Miner's Attachment	Tipple Scales	Weight O-Meter
Belleville	1,453			18	569			118		4							
Hamilton	11,519			336	898			684		26	2	1					
Kingston	618			6	300			68		3							
London	19,478			19,449	516			2,555		6		4	14,189				
Ottawa	4,696			259	900	1		830		47		3					
Toronto	18,017			44,082	3,047			146		241		26	37,400				
ONTARIO	55,781			64,150	6,230	1		4,401		327	2	34	51,589				
Montreal	28,001			4,599	1,754	11		3,689		13		6					
Quebec	12,866				986			2,238		15							
Sherbrooke	1,673				453			199					10				
Three Rivers	2,838				320	4		488		3			24				
QUEBEC	45,378			4,599	3,513	15		6,614		31		6	34				
St. John, N.B	5,152			1,900	841			53					136				
Halifax	2,278				814	5		65				4	2,672	69	12		
Pictou	258				127			11									
NOVA SCOTIA	2,536				941	5		76				4	2,672	69	12		
Charlottetown, P.E.I	216				205												
Winnipeg, MAN	3,056			1,698	1,518	1		957		111		1	2,242				

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APPENDIX C—Concluded.

RETURN showing the Number of Measures of Capacity, Lineal Measures and Miscellaneous Articles rejected in each Inspection Division, during the Fiscal Year ended March 31, 1922.

Inspection Division.	Measures of Capacity.				Measuring Device.			Lineal Measures.		Miscellaneous.		
	Dominion	Glass	Metric	Milk Cans	Pumps	Measuring Tanks	Meters	Dominion	Metric	Measure-graphs	Ice Cream Con-tainers	Tipple Scales
Belleville	13				13							
Hamilton	117			70	74			27		3		
Kingston	14				10							
London	4				47							
Ottawa	25			41	63					5		
Toronto					35					7		
ONTARIO	173			111	242			27		15		
Montreal					99	3						
Quebec	13				5			6				
Sherbrooke					11							
Three Rivers					5							
QUEBEC	13				120	3		6				
St. John, N.B.					9							
Halifax	19				10						24	
Pictou					2							
NOVA SCOTIA	19				12						24	
Charlottetown, P.E.I.	31				25							
Winnipeg, MAN.					47			17		5		
Regina					53		1	1		1		
Saskatoon					37							
SASKATCHEWAN					90		1	1		1		

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ELECTRICITY AND GAS INSPECTION SERVICES.

Mr. O. Higman, Director of Electricity and Gas Inspection Services, reports as follows:—

The returns for the fiscal year which ended on the 31st March last show a considerable increase in the number of meters tested throughout the Dominion, indicating to some extent, a return towards normal trade conditions. The number of meters tested during the year was as follows:—

Electricity meters	218,710
Gas meters	118,299
Total	337,009

These figures show an increase of 14,628 meters over the previous year.

The amount of revenue accruing from the inspection fees was:—

Electricity inspection	$ 140,069 35
Gas inspection	81,800 00
Total	$ 221,869 35

or an increase of $10,040.75 over the previous year.

The expenditure for the fiscal year 1921-22 was as follows:—

Electricity	$ 117,050 97
Gas	45,387 84
Total	$ 162,438 81

to this must be added $15,000 for salaries of laboratory and administration staff at Ottawa and $22,000 for office accommodation throughout Canada, making the total expenditure $199,438.81.

EXPORTATION OF ELECTRICAL ENERGY.

The total amount of electric power exported to the United States during the fiscal year just ended was 861,567,183 kilowatt-hours, being a decrease of 157,996,828 kilowatt-hours as compared with the previous year.

APPENDIX D.

STATEMENT of Electricity Inspection, Expenditures and Revenues for the Fiscal Year ending March 31, 1922.

Districts.	District Inspectors.	Expenditures.						Revenue
		Salaries.	Special Assistance.	Rent.	Travelling expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
ONTARIO—								
Belleville	W. H. Middleton	4,490 00			1,166 15	61 45	5,717 50	4,429 30
Fort William	E. Little	1,800 00			417 10	109 55	2,326 65	1,447 90
Hamilton	H. Lutz		24 00	30 00	1,123 05	168 83	1,345 88	10,164 60
London	A. F. Nash	6,210 00	600 00		1,113 87	143 81	8,067 68	12,242 50
Ottawa	J. A. Ham	6,870 50	60 00		922 65	95 43	7,948 58	6,652 90
Sudbury	L. H. Bouskill	1,800 00			336 14	81 34	2,217 48	1,933 50
Toronto	H. M. Clark	15,888 31	33 87		1,729 85	262 12	17,914 15	23,457 10
	ONTARIO	37,058 81	717 87	30 00	6,808 81	922 53	45,538 02	60,327 80
QUEBEC—								
Montreal	R. J. Chevrier		315 00		890 76	315 35	1,521 11	26,372 35
Quebec	J. A. Cantin	2,640 00			636 70	115 90	3,392 60	2,809 80
Sherbrooke	F. C. Bowen, Actg.				271 90	28 51	300 41	1,174 35
Three Rivers	A. Olivier	2,899 84			646 90	90 45	3,637 19	3,549 70
	QUEBEC	5,539 84	315 00		2,446 26	550 21	8,851 31	33,906 20
NEW BRUNSWICK—								
St. John	J. E. Wilson				249 60	64 41	314 01	2,518 65
NOVA SCOTIA—								
Halifax	John Toale	3,240 00	1,295 00		1,083 85	158 27	5,777 12	4,879 55
PRINCE EDWARD ISLAND								
Charlottetown	J. H. Bell	500 00			98 85	18 65	617 50	343 95
MANITOBA—								
Winnipeg	R. Hamilton				594 35	214 45	808 80	14,103 80
ALBERTA—								
Calgary	W. P. Kyle	4,215 00			1,026 58	177 96	5,419 54	3,312 50
Edmonton	A. J. Cantin	2,820 00			401 00	140 48	3,361 48	2,533 50
	ALBERTA	7,035 00			1,427 58	318 44	8,781 02	5,846 00
SASKATCHEWAN—								
Regina	S. N. Hart	2,100 00	60 00		1,834 98	196 30	4,191 28	5,061 75
BRITISH COLUMBIA—								
Nelson	H. B. Penny	1,575 00	45 00		492 91	99 35	2,212 26	1,122 85
Vancouver	G. T. Scouler	7,189 98	135 48		363 61	210 78	7,899 85	8,749 45
Victoria	E. H. Ruttan		48 00		316 50	140 22	504 72	2,450 30
	BRITISH COLUMBIA	8,764 98	228 48		1,173 02	450 35	10,616 83	12,323 10

APPENDIX D—Concluded.

STATEMENT of Electricity Inspection, Expenditures and Revenues for the Fiscal Year ending March 31, 1922.

Districts.	District Inspectors.	Expenditures.						Revenue
		Salaries.	Special Assistance.	Rent.	Travelling expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
DIRECTOR	O. Higman					291 11	291 11	
SUPERINTENDENT OF EASTERN DIVISION	J. L. Stiver	2,460 00			860 57	14 61	3,335 18	
SUPERINTENDENT OF CENTRAL DIVISION	P. R. Rutledge	3,990 00			457 15	138 71	4,585 86	
SUPENINTENDENT OF WESTERN DIVISION	James Stott	2,460 00			507 63	272 57	3,240 20	
		8,910 00			1,825 35	717 00	11,45 235	
	TOTAL FOR DISTRICTS	73,148 63	2,616 35	30 00	17,542 65	3,610 61	96,948 24	139,310 80
General Contingencies							4,115 44	
Printing							1,657 23	
Stationery							2,567 24	
International Electro-technical Commission							214 00	
Cost of Living Bonus							11,060 22	
Export of Electirc Power							35 26	525 00
Electrical Standard Lab. Fees								154 65
Electrical Casual Revenue								78 90
Grand Total							116,597 63	140,069 35
Gratuities to Relatives of deceased Officers						300 00		
Gratuities Superannuation No. 4. Chapter 67-10-11 George V						33 34		
Vote 529 Arrears in Salary owing to Classification						120 00		
							453 34	

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APPENDIX E.

STATEMENT of Gas Inspection, Expenditure and Revenues for the Fiscal Year ending March 31, 1922.

Districts.	District Inspectors.	Expenditures.						Revenue.
		Salaries.	Special Assistance.	Rent.	Travelling expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
ONTARIO—								
Belleville	W. H. Middleton				99 55	16 82	116 37	2,210 30
Hamilton	H. Lutz	7,635 00		15 00	506 86	50 64	8,207 30	7,892 90
London	A. F. Nash		12 00		786 30	51 02	849 32	7,748 75
Ottawa	J. A. Ham							2,408 40
Toronto	H. M. Clark				61 20	145 43	206 63	31,160 60
	ONTARIO	7,635 00	12 00	15 00	1,453 71	263 91	9,379 62	51,420 95
QUEBEC—								
Montreal	R. J. Chevrier	14,030 00					14,030 00	17,973 50
Quebec	J. A. Cantin							964 30
Sherbrooke	F. C. Bowen, Actg	716 60					716 60	326 75
	QUEBEC	14,746 60					14,746 60	19,264 55
NEW BRUNSWICK—								
St. John	J. E. Wilson	3,165 00			313 65	14 75	3,493 40	1,175 70
NOVA SCOTIA—								
Halifax	John Toale							406 50
MANITOBA—								
Winnipeg	R. Hamilton	7,094 33					7,094 33	3,645 75
ALBERTA—								
Calgary	W. P. Kyle							1,757 60
BRITISH COLUMBIA—								
Vancouver	G. T. Scouler				5 34		5 34	3,197 85
Victoria	E. H. Ruttan	2,924 52					2,954 52	772 65
Nelson	H. B. Penny							158 45
	BRITISH COLUMBIA	2,924 52			5 34		2,929 86	4,128 95
	TOTALS FOR DISTRICTS	35,565 45	12 00	15 00	1,772 70	278 66	37,643 81	81,800 00
General Contingencies							101 68	
Printing							828 62	
Stationery							1,283 62	
Cost of Living Bonus							5,530 11	
Grand total							45,387 84	81,800 00

APPENDIX F.

Coal and Water Gas Companies Registered and Gas Tests made.

Place	Company	Kind of Gas	Number of Meters
Barrie, Ont.	Barrie Gas Co	C.W.	755
Belleville, Ont.	Belleville Gas Department	C. and C.W.	1,400
Brandon, Man.	Brandon Gas & Power Co.	C	1,004
Brockville, Ont.	Corp. of Brockville	C.W.	2,041
Cobourg, Ont.	H.E.P. Comm.	C	411
Cornwall, Ont.	Stormont Gas Co.	C.W.	483
Guelph, Ont.	Corp. of Guelph	C. and C.W.	3,764
Halifax, N.S.	N.S. Tramways & Power Co., Ltd.	C	1,861
Hamilton, Ont.	United Gas & Fuel Co.	C.W.	898
Kingston, Ont.	Cor. of Kingston	C.W.	3,429
Kitchener, Ont.	Kitchener Light Comm.	C.W.	4,018
London, Ont.	City Gas Co.	C. and C.W.	11,734
Montreal, P.Q.	Montreal L.H. & P. Co.	C. and C.W.	121,713
Nelson, B.C.	Corporation of Nelson	C	486
New Westminster, B.C.	New Westminster Gas Co., Ltd.	C	504
Oshawa, Ont.	H.E.P. Comm.	C.W.	1,236
Ottawa, Ont.	Ottawa Gas Co	C	17,726
Owen Sound, Ont.	Corp. of Owen Sound	C. and C.W.	1,329
Peterboro, Ont.	H.E.P. Comm.	C.W.	2,900
Port Hope, Ont.	Port Hope Gas Dept.	C	430
Quebec, Que	Quebec, Gas Co.	C.W.	7,688
St. John, N.B.	St. John Ry. Co	C	1,695
St. Thomas, Ont.	City of St. Thomas	C. and C.W.	3,685
Sherbrooke, Que.	Corp. of Sherbrooke	C .W.	1,765
Sorel, Que.	Corp. of Sorel	C	265
Stratford, Ont.	Stratford Gas Co.	C. and C.W.	1,118
Toronto, Ont.	Consumers Gas Co.	C. and C.W.	127,740
Vancouver, B.C.	Vancouver Gas Co., Ltd.	C. and C.W.	19,235
Victoria, B.C.	Victoria Gas Co	C	3,921
Waterloo, Ont.	Water & Light Comm.	C.W.	921
Winnipeg, Man.	Winnipeg E. Ry. Co.	C	21,682

Tests for Sulphuretted Hydrogen were discontinued from October 15th, 1921.

APPENDIX F.

Coal and Water Gas Companies registered and Gas Tests made.

Sulphuretted Hydrogen (No trace permitted)			Calorimetric Tests (Standard: 450 British Thermal Units per cu. ft.)					
No. of tests		Times found present	No. of tests		B. T. U. Values Found			No. of times below standard value
Prescribed	Made		Prescribed	Made	Highest	Lowest	Average	
12	11	11	24	23	602	484	532	0
26	27	0	48	43	533	443	476	3
26	12	0	48	22	569	394	483	5
52	52	0	96	96	675	440	580	2
13	13	0	24	24	607	468	548	0
13	13	0	24	24	552	461	491	0
52	50	0	96	96	574	461	515	0
26	26	0	48	48	546	483	507	0
13	13	0	24	24	544	458	487	0
52	52	0	96	96	628	476	546	0
52	52	0	96	96	582	476	523	0
165	165	0	305	305	562	458	502	0
165	166	0	305	306	511	441	471	2
13	13	0	24	24	504	450	467	0
13	13	0	24	24	620	469	531	0
26	25	23	48	48	523	406	454	14
165	163	0	305	300	523	456	476	0
26	26	1	48	48	637	476	533	0
52	52	5	96	96	505	455	479	0
11	11	0	24	24	679	569	617	0
78	78	0	144	144	547	457	497	0
26	26	0	48	48	589	530	564	0
52	52	0	96	96	590	463	527	0
26	27	0	48	48	519	467	477	0
Apparatus not installed.								
26	26	0	48	48	618	483	545	0
165	165	33	305	305	529	471	500	0
165	166	1	305	299	514	350	462	30
52	53	0	96	96	532	433	474	1
13	13	0	24	24	630	475	520	0
165	173	0	305	308	546	467	504	0

APPENDIX G.

STATEMENT of Electric Meters tested during the fiscal year 1921-22.

District	Accepted			Rejected		New	Retests	Disputes	Totals	Class 1 60c.	Class 2 75c.	Class 3 $1.50	Class 4 $5.00
	Correct	Not over 3% fast	Not over 3% slow	Over 3% fast	Over 3% slow								
Belleville	2,510	3,625	900	1		3,393	3,639	4	7,036	5,938	1,042	56	
Calgary	1,947	3,064	158	38	62	1,518	3,640	102	5,260	4,680	578		11
Charlottetown	158	293	112		4	280	275	3	567	542	25		
Edmonton	933	3,059	123	2	1	1,606	2,505	7	4,118	3,705	412	1	
Fort William	136	1,839	319			622	1,661	11	2,294	1,889	400	5	
Halifax	4,369	2,729	815	67	51	4,381	3,631	19	8,031	7,688	333	10	
Hamilton	9,343	3,207	3,104			7,138	8,502	14	15,654	11,651	3,774	229	
London	5,458	7,565	5,666	10	13	8,608	10,074	30	18,712	13,985	4,320	407	
Montreal	7,788	22,411	11,136	69	128	11,720	29,708	05	41,532	39,701	165	1,576	
Nelson	788	471	336			922	667	6	1,595	1,436	131	2	26
Ottawa	1,360	6,713	2,494	4	24	2,531	8,018	46	10,595	9,269	1,214	112	
Quebec	2,714	1,273	610			3,041	1,556		4,597	4,483	68	46	
Regina	3,638	3,457	1,193	3		2,884	5,392	15	8,291	7,740	545	6	
Sherbrooke	315	1,121	483			985	934		1,919	1,876	21	22	
St. John	1,847	1,116	1,171	24	5	1,557	2,408	198	4,163	4,054	103	6	
Sudbury	1,240	1,382	493	2	1	1,560	1,559	8	3,127	2,760	364	3	
Three Rivers	1,138	3,969	396	49	01	2,767	2,782	04	5,643	5,322	280	41	
Toronto	13,989	16,523	5,137	39	123	15,443	20,327	41	35,811	28,286	6,408	1,117	
Vancouver	4,394	7,237	2,107	213	117	3,992	1,0013	63	14,068	12,597	1,421	50	
Victoria	1,081	2,581	344		3	858	3,121	30	4,009	3,853	138	18	
Winnipeg	8,391	11,889	1,397	1	1	4,794	16,873	12	21,679	17,213	3,900	566	
Totals	73,546	105,524	38,491	522	624	80,618	137,294	798	218,710	188,758	25,642	4,273	37

APPENDIX H.

STATEMENT of Gas Meters Tested during the Fiscal Year 1921-22.

District	Accepted			Rejected		New	Retests	Disputes	Totals	Class 1 60c.	Class 2 1$.00	Class 3 $1.50	Class 4 $2.00	Class 5 $2.50 up
	Correct	Not over 2% fast	Not over 3% slow	Over 2% fast	Over 3% slow									
Belleville	420	201	1,085	14	7	256	1,434	37	1,727	1,703	21		2	1
Calgary	108	40	2,278	9	2	331	2,041	65	2,437	2,206	145	61	22	3
Halifax	326	24	108			54	401	3	458	445	13			
Hamilton	4,573	941	6,153			1,111	10,530	26	11,667	11,564	70	22	11	
London	2,651	1,979	5,976	13	15	884	9,697	53	10,634	10,435	92	22	74	11
Montreal	6,018	2,783	18,907	150	112	3,665	24,195	110	27,970	27,570	335		61	4
Nelson	56	47	55			158			158	157	1			
Ottawa	540	896	1,087	31	8		2,513	49	2,562	2,529	29		4	
Quebec	774	34	160			265	703		968	958	10			
Sherbrooke	93	180	53				332		332	330		2		
St. John	1,046	188	365	3	4	300	1,244	62	1,606	1,532	68		6	
Toronto	16,204	6,493	25,009	730	177	7,263	40,643	707	48,613	47,311	1,176		84	42
Vancouver	985	1,228	1,561	23	10	999	2,769	39	3,807	3,661	143		3	
Victoria	236	229	363		1	117	706	6	829	774	55			
Winnipeg	2,061	790	1,675	5		201	4,310	20	4,531	4,410	116		5	
Totals	36,091	16,059	64,835	978	336	15,604	101,518	1,177	118,299	115,585	2,276	105	272	61

APPENDIX I

Statement of Natural Gas Companies Registered

District and Name	Location	Number of Meters
Calgary District—		
Bow Island, town of	Bow Island, Alta	138
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Bowness, Alta	7
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Brooks, Alta	118
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Calgary, Alta	9,641
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Claresholm, Alta	213
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Field, Alta	1
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Granum, Alta	102
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Lethbridge, Alta	1,042
Canadian Western Natural Gas, L.H. & P. Co., Ltd	MacLeod, Alta	257
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Main Line	24
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Nanton, Alta	152
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Okotoks, Alta	111
Canadian Western Natural Gas, L.H. & P. Co., Ltd	Turner Valley, Alta	6
Canadian Western Power and Fuel Co	Red Cliff, Alta	313
Medicine Hat, City of	Medicine Hat, Alta	2,950
Suffield, Village of	Suffield, Alta	29
Hamilton District—		
Bertie Natural Gas Company	Ridgeway, Ont	140
Brantford Gas Company	Brantford and Echo Place, Ont	4,438
Chippewa Development Company	Chippewa, Ont	72
Chippewa Oil and Gas Company	Caistor and Gainsboro Twps., Ont	250
Coleman, J. A	Welland and Lincoln Counties, Ont	81
Dominion Natural Gas Company	Cayuga, Ont	227
Dominion Natural Gas Company	Dalbi, Ont	253
Dominion Natural Gas Company	Dundas, Ont	1,079
Dominion Natural Gas Company	Dunnville, Ont	1,250
Dominion Natural Gas Company	Galt, Ont	1,544
Dominion Natural Gas Company	Hamilton, Ont	1,719
Dominion Natural Gas Company	Jarvis, Ont	227
Dominion Natural Gas Company	Lyndoch, Ont	40
Dominion Natural Gas Company	Paris, Ont	587
Dominion Natural Gas Company	Port Dover, Ont	471
Dominion Natural Gas Company	Port Rowan, Ont	244
Dominion Natural Gas Company	Selkirk and Country	534
Dominion Natural Gas Company	Simcoe, Ont	1,571
Dominion Natural Gas Company	St. George, Ont	135
Dominion Natural Gas Company	St. William, Ont	99
Dominion Natural Gas Company	Vittoria, Ont	71
Industrial Natural Gas Company	Welland County, Ont	73
Lake Shore Natural Gas & Fuel Co	Port Erie, Ont	300
Manufacturers Natural Gas Co., Ltd	Hagersville, Ont	366
Manufacturers Natural Gas Co., Ltd	Hamilton, Ont	30
Midfield Natural Gas Company	Haldimand County Twps. of Oneida & North Cayuga, Ont.	35
National Gas Company	Haldimand County	34
Port Colborne Welland Natural Gas Co	Caledonia and vicinity	531
Progressive Gas & Oil Company, Ltd	Belmont, Ont	80
Provincial Natural Gas & Fuel Co., Ltd	Bridgeburg and Sherkstone, Ont	1,574
Provincial Natural Gas & Fuel Co., Ltd	Niagara Falls, Ont	3,193
Provincial Natural Gas & Fuel Co., Ltd	Welland, Ont	2,383
Rose Hill Natural Gas Company	Bertie Twp. Rosehill and Welland County, Ont	40
Sterling Gas Company	Port Colborne, Ont	1,308
United Gas Companies, Ltd	Fenwick, Ont	235
United Gas Companies, Ltd	St. Catharines, Ont	3,444
United Gas Companies, Ltd	Thorold, Ont	473
United Gas & Fuel Co. of Hamilton, Ltd	Hamilton, Ont	21,865
London District—		
Beaver Oil and Gas Company, The	Kingsville and County	1,167
Beaver Oil and Gas Company, The	Leamington, Wheatley and County, Ont	404
Chatham Gas Company, The	Chatham, Ont	3,723
Central Pipe Line Company, The	Aylmer, Ont	688

APPENDIX I—Concluded

STATEMENT of Natural Gas Companies Registered

District and Name	Location	Number of Meters
Central Pipe Line Company, The	Malahide and Bayham, Ont.	67
Central Pipe Line Company, The	Port Burwell, Ont.	88
Central Pipe Line Company, The	Vienna, Ont.	83
Dominion Natural Gas Company, The	Tillsonburg, Ont	1,251
Glenwood Natural Gas Company, The	Glenwood, Ont.	253
Ingersool Gas Light Company, The	Ingersoll, Ont.	1,217
Leamington, Town of	Leamington, Ont.	1,135
Petrolia Utilities Company, The	Petrolia, Ont.	801
Sarnia Gas Company, The	Sarnia, Ont.	3,900
Southern Ontario Gas Company, The	Dorchester and Putman	123
Southern Ontario Gas Company, The	Dutton, Ont	272
Southern Ontario Gas Company, The	Highgate and Wallacetown, Ont.	285
Southern Ontario Gas Company, The	Lembeth, Ont.	89
Southern Ontario Gas Company, The	Rodney and The Main Line	662
Southern Ontario Gas Company, The	Shedden, Ont.	153
Southern Ontario Gas Company, The	West Lorne, Ont.	219
Union Natural Gas Company, The	Blenheim, Ont.	520
Union Natural Gas Company, The	Dresden, Ont.	495
Union Natural Gas Company, The	Ridgetown, Ont.	625
Union Natural Gas Company, The	Tillbury, Ont.	400
Wallaceburg Gas Company, The	Wallaceburg, Ont.	1,047
Windsor Gas Company, The	Ford, Ont.	440
Windsor Gas Company, The	Sandwich, Ont.	445
Windsor Gas Company, The	Sandwich East, Ont.	25
Windsor Gas Company, The	Walkerville, Ont.	1,403
Windsor Gas Company, The	Windsor, Ont.	7,209
Woodstock Gas Light Company, The	Woodstock, Ont.	2,101
St. John District—		
Moncton Tramways Electricity & Gas Company, Ltd.	Moncton and Suburbs and Hillsboro, N.B.	4,395

APPENDIX J

STATEMENT of Acetylene Gas Companies, Registered

District and Name	Location	Number of Meters
Winnipeg District—		
Acetylene Construction Company, The	Hamiota, Man.	50
Acetylene Construction Company, The	Morris, Man.	71
Carberry Gas Company	Carberry, Man.	50
Delorraine Gas Company	Delorraine, Man.	73
Manitou Gas Company	Manitou, Man.	66
Souris Consumers Gas Company, Ltd.	Souris, Man.	120

NOTE.—Verdun Gas Department has discontinued making gas.

APPENDIX K.

STATEMENT showing amount of Electrical Energy, Gas, or Fluid generated or produced for export and for consumption in Canada, under the authority of the Electricity and Fluid Exportation Act, for the year ending 31st day of March 1922.

NAME OF CONTRACTOR AND PLACE OF BUSINESS	Month.	Units produced for export		Unites produced for use in Canada		Total output of generating Station or other Source	
		K.W. hours	H.P. years	K.W. hours	H.P. years	K.W. hours	H.P. years
Cedar Rapids, Mfg. & Power Co., Montreal, Que.	April	27,355,000	4,170	20,521,500	3,140	47,870,500	7,310
	May	25,124,000	4,820	23,039,000	3,523	48,163,000	7,367
	June	28,245,000	4,322	23,561,500	3,605	51,806,500	7,927
	July	30,816,000	4,715	21,911,750	3,352	52,727,750	8,068
	Aug.	31,433,000	4,809	23,478,500	3,593	54,911,500	8,403
	September	30,960,000	4,737	21,725,250	3,324	52,685,250	8,062
	October	31,504,000	4,820	25,114,500	3,846	56,618,500	8,666
	November	28,084,000	4,297	26,096,750	3,996	54,170,750	8,294
	December	26,403,000	4,040	23,475,000	3,592	49,878,000	7,632
	January	22,172,000	3,392	18,575,250	2,845	40,747,250	6,238
	February	15,691,000	2,401	18,755,000	2,809	34,446,000	5,271
	March	26,406,000	4,040	21,056,500	3,222	47,462,500	7,262
	Totals	324,193,000	49,592	267,310,500	40,913	591,493 500	90,505
Ontario Power Co., Niagara Falls, Ont.	April	22,264,700	3,406	44,012,300	6,734	66,277,000	10,141
	May	23,339,500	3,471	40,632,000	6,217	63,971,500	9,689
	June	25,748,900	3,940	38,646,000	5,913	64,394,900	9,853
	July	25,920,100	3,966	32,698,000	5,003	58,618,100	8,969
	August	29,558,400	4,523	36,217,000	5,542	65,775,400	10,065
	September	29,267,600	4,478	38,475,000	5,887	67,742,600	10,366
	October	30,118,500	4,608	41,107,600	6,302	71,226,100	10,911
	November	25,909,700	3,964	40,062,900	6,130	65,972,600	9,095
	December	21,218,500	3,246	42,235,500	6,462	63,454,000	9,709
	January	22,978,100	3,516	43,106,300	6,596	66,084,400	10,112
	February	22,165,100	3,391	37,780,000	5,781	59,945,100	9,172
	March	25,735,300	3,938	48,466,700	7,416	74,201,000	11,354
	Totals	304,224,400	46,453	483,439,300	73,989	787,662,700	119,442
Canadian Niagara Power Co., Niagara Falls, Ont.	April	12,144,800	1,858	35,521,200	5,436	47,666,000	7,294
	May	7,852,080	1,202	36,656,920	5,609	44,509,000	6,811
	June	3,508,020	537	36,514,980	5,588	40,023,000	6,125
	July	3,124,800	478	36,915,200	5,649	40,040,000	6,127
	August	4,375,100	670	36,205,900	5,290	40,581,000	5,960
	September	5,199,000	796	35,376,000	5,413	40,575,000	6,209
	October	7,208,600	1,103	36,091,400	5,525	43,300 000	6,628
	November	7,741,000	1,185	32,454,000	4,966	40,195,000	6,151
	December	7,528,900	1,152	31,866,100	4,876	39,395,000	6,028

	January	7,317,700	1,120	29,350,300	4,492	36,668,000	6,612
	February	7,715,400	1,181	22,393,600	3,427	30,109,000	4,608
	March	8,548,600	1,308	24,535,400	3,755	33,084,000	5,063
	Totals	82,264,000	12,590	393,881,000	60,026	476,145,000	73,616
Toronto Power Co., Toronto, Ont.	April	8,282,000	1,268	41,133,800	6,399	49,415,800	7,667
	May	8,921,000	1,365	42,298,100	6,472	51,219,100	7,837
	June	8,644,000	1,323	39,721,500	6,077	48,365,500	7,400
	July	7,968,000	1,220	38,161,700	5,838	46,129,700	7,058
	August	8,693,000	1,331	39,330,600	6,018	48,023,600	7,349
	September	8,566,000	1,311	39,041,600	5,976	47,607,600	7,287
	October	8,759,000	1,341	46,695,000	7,124	55,454,000	8,465
	November	8,408,000	1,287	52,521,500	8,035	60,929,500	9,322
	December	8,652,000	1,324	52,390,400	8,013	61,042,400	9,337
	January	8,588,000	1,313	53,045,400	8,118	61,633,400	9,431
	February	7,832,000	1,198	47,628,900	7,286	55,460,900	8,484
	March	8,809,000	1,348	41,495,000	6,347	50,304,000	7,695
	Totals	102,122,000	15,629	533,463,500	81,703	635,585,500	97,332
Western Canada Power Co., Vancouver, B.C.	April	1,964,500	297	8,497,640	1,301	10,462,140	1,598
	May	1,433,400	219	6,793,960	1,040	8,227,360	1,259
	June	1,710,200	262	7,168,080	1,097	8,878,280	1,395
	July	1,672,400	256	7,796,300	1,193	9,468,700	1,449
	August	2,783,000	426	7,857,100	1,202	10,640,100	1,628
	September	2,502,100	383	6,600,400	1,010	9,102,500	1,393
	October	2,035,500	311	7,256,800	1,110	9,292,300	1,421
	November	1,700,000	260	8,110,800	1,241	9,810,800	1,501
	December	1,579,200	242	9,435,900	1,444	11,015,100	1,686
	January	2,006,300	307	8,264,100	1,265	10,270,400	1,572
	February	2,349,900	359	2,947,300	451	5,297,200	810
	March	3,088,800	472	1,774,000	271	4,862,800	743
	Totals	24,825,300	3,594	82,502,380	12,625	107,327,680	16,219
Ontario & Minnesota Power Co., Fort Francis, Ont.	April	1,471,924	217	1,172,809	179	2,644,733	396
	May	825,342	126	319,572	49	1,144,914	175
	June	539,140	82	257,404	39	796,544	121
	July	2,149,102	329	1,128,990	173	3,278,092	502
	August	814,652	125	1,156,789	176	1,971,441	301
	September	1,294,117	198	1,186,855	181	2,480,972	379
	October	1,026,043	157	1,244,376	190	2,270,419	347
	November	968,312	148	1,246,837	191	2,215,149	339
	December	829,988	127	1,173,856	180	2,003,844	307
	January	896,190	137	1,073,675	164	1,969,865	301
	February	1,005,160	154	1,088,120	167	2,093,280	321
	March	909,040	139	1,204,866	184	2,113,906	323
	Totals	12,729,010	1,939	12,254,149	1,873	24,983,159	3,812

APPENDIX K—Concluded.

STATEMENT showing amount of Electrical Energy, Gas, or Fluid generated or produced for export and for consumption in Canada, under the authority of the Electricity and Fluid Exportation Act, for the year ending 31st day of March, 1922.

NAME OF CONTRACTOR AND PLACE OF BUSINESS	Month.	Units produced for export		Unites produced for use in Canada		Total output of generating Station or other Source	
		K.W. hours	H.P. years	K.W. hours	H.P. years	K.W. hours	H.P. years
Maine & New Brunswick Electrical Power Co., Presque Isle, Maine, U.S.A.—	April	644,223	99	29,777	5	674,200	104
	May	492,538	75	25,916	4	518,454	79
	June	511,186	78	25,764	4	536,950	82
	July	500,873	77	28,277	4	529,150	81
	August	509,695	78	29,005	4	538,700	82
	September	632,321	97	30,779	5	663,100	102
	October	702,493	108	36,207	6	738,700	114
	November	858,048	131	37,252	6	895,300	137
	December	960,590	147	32,810	5	993,400	152
	January	943,609	145	40,891	6	984,500	151
	February	794,421	122	36,679	6	831,100	128
	March	910,294	139	38,906	6	949,200	145
	Totals	8,460,291	1,296	392,463	·61	8,852,754	1,357
West Kootenay Power & Light Co., Ltd., Rossland, B.C.	April	435,900	66	14,784,500	2,262	15,220,400	2,328
	May	94,400	14	15,767,200	2,411	15,861,600	2,425
	June	71,800	11	14,778,300	2,260	14,850,100	2,271
	July	65,400	10	15,667,200	2,397	15,732,600	2,407
	August	61,200	9	14,848,100	2,270	14,909,300	2,279
	September	95,800	15	51,907,900	2,432	16,003,700	2,447
	October	129,400	20	15,749,600	2,409	15,879,000	2,429
	November	170,200	26	14,753,700	2,257	14,923,900	2,283
	Dec	215,700	33	14,904,800	2,280	15,120,500	2,313
	January	271,000	41	15,244,500	2,329	15,515,500	2,370
	February	238,800	37	14,011,900	2,143	14,250,700	2,180
	March	235,300	36	15,966,400	2,441	16,201,700	2,477
	Totals	2,084,900	318	182,384,100	27,891	184,469,000	28,209
British Columbia Electric Ry. Co., Vancouver, B.C.	April	29,568	5	8,096,032	124	8,125,600	129
	May	27,480	4	8,449,720	129	8,477,200	133
	June	24,919	4	7,809,481	120	7,834,400	124
	July	25,914	4	8,261,486	127	8,287,400	131

	August	29,300	4	9,272,800	142	9,302,100	146
	September	33,269	5	10,641,931	163	10,675,200	168
	October	39,676	6	11,592,884	177	11,632,560	183
	November	49,553	8	11,527,747	176	11,577,300	184
	December	48,012	7	11,844,488	181	11,892,500	188
	January	39,150	6	12,874,650	197	12,913,800	203
	February	37,021	6	15,480,879	236	15,517,900	242
	March	35,830	5	17,167,995	263	17,203,825	268
	Totals	419,692	64	133,020,093	2,035	133,439,785	2,099
Sherbrooke Railway and Power Co., Sherbrooke, Que.	April	22,368	3	460,032	70	482,400	73
	May	21,080	3	474,520	73	495,600	76
	June	19,920	3	433,680	66	453,600	69
	July	18,192	3	463,808	71	482,000	74
	August	22,008	3	507,922	78	529,930	81
	September	20,136	3	448,264	69	468,400	72
	October	21,576	3	325,224	50	340,800	53
	November	20,496	3	431,504	66	452,000	69
	December	21,840	3	477,360	73	499,200	76
	January	21,936	3	534,064	82	576,000	85
	February	20,928	3	420,272	64	441,200	67
	March	21,720	3	415,080	64	436,800	67
	Totals	252,200	36	5,391,730	826	5,663,930	862

SUMMARY

Ontario Power Co	304,244,400	46,453	483,439,300	73,989	787,662,700	119,442
Toronto Power Co	102,122,000	15,629	553,463,500	81,703	635,585,500	97,332
Cedar Rapids Mfg. & Power Co	324,193,000	49,592	310,500	40,913	591,493,500	90,505
Can. Niagara Power Co	82,264,000	12,590	393,881,000	60,026	476,145,000	73,616
West Kootenay Power & Light Co	2,084,900	318	182,384,100	27,891	184,469,000	28,209
Western Canada Power Co	24,825,300	3,594	82,502,380	12,625	107,327,680	16,219
Ontario & Minnesota Power Co	12,729,010	1,939	12,254,149	1,873	24,983,159	3,812
British Columbia Electric Ry. Co	419,692	64	133,020,093	2,035	133,439,785	2,099
Maine & New Brunswick Electric Power Co	8,460,291	1,296	392,463	61	8,852,754	1,357
Sherbrooke Ry. & Power Co	252,200	36	5,391,730	826	5,663,930	862
Totals	861,594,793	131,511	2,114,039,211	301,942	2,955,623,008	433,453

APPENDIX L

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Charlottetown, P.E.I.—										
Leard Electric Light & Power Co	Alberton	Steam		3 & 2	60	2,200	220	110		95
Chas. Murray Electric Light Co	Bradalbane	Water		D.C.		110		110		14
Cardigan Electric Company	Cardigan	Purchased							1	30
The Maritime Electric Co., Limited	Charlottetown	Gas and steam		3 & 1	60	2,300	220	110	134	2,076
Geo. E. Leard & Son	Crapand	Water		2	60	2,200		110		40
Hunter River Electric Light Co., Ltd.	Hunter River	Water		3 & 1	60	2,200		110		24
J. A. Monaghan	Kinkora	Water		3	60	2,200		110		112
The Montague Electric Co., Ltd	Montague	Water		1 & 3	60	2,200	220	110	12	236
Mt. Stewart Electric Light Co	Mt. Stewart	Oil				110		110		10
Charles W. Ives	North Tryon	Water		3	60	2,200		110		37
Town of Summerside	Summerside	Gas and steam		2	133	1,100		110		465
Halifax, N.S.—										
Canada Electric Company, Ltd	Amherst	Steam		1-3	60	2,200	550/220	110/220	45	1,581
Town of Annapolis Royal	Annapolis Royal	Water		2	60	2,500	104	104		3
Antigonish Electric Company	Antigonish	Oil		D.C.		115/230	115/230	115	1	186
Electric Light Commission of Aylesford	Aylesford	Purchased		1-3	60	2,200	110	110	1	52
Barrington Electric Company, Ltd	Barrington	Water		1-3	60	2,300		110		12
Barss Corners Electric Light Co., Ltd.	Barss	Water				2,300		110		15
The Bear River & Digby Elec. Lt., Heating & Power Co., Ltd	Bear River	Water		3	60	2,200		110		30
Water & Light Commissioners	Berwick	Water		3	60	2,350		110		160
The Bridgetown Electric Lt. Ht. & Power Co	Bridgetown	Water		1	60	2,300		110		234
The Town of Bridgewater	Bridgewater	Water		2	60	2,200		110		
Canning Water Commission	Canning	Purchased		3	125	2,300	2,500	110		117
The Town of Canso	Canso	Gas		3	60	2,200		110		229
Dartmouth Gas Elec. Lt. Heating & Power Co., Ltd	Dartmouth	Purchased		1-3	60		220/550	110	46	1,645
The Town of Dominion	Dominion	Purchased		1	25		2,200	110		250
John Daley	Digby	Steam				2,300		110		220
Town of Glace Bay	Glace Bay	Steam		1-2	60	2,200	110	100	11	1,557
Sackville River Electric Company, Ltd	Halifax	Purchased		1-3	60	2,200		110/220		200

Nova Scotia Tramways & Power Co., Ltd.	Halifax	Steam		1-3	60	2,300	220/550	110	595	8,834
Nova Scotia Power Commission	Halifax	Water		3	60	6,600	3,300		2	
Lower Horton Electric Company, Ltd.	Hortonville	Purchased								35
Inverness Railway & Coal Company	Inverness					125		115/125		
Kentville Electric Commission	Kentville	Steam		3	60	2,300		110	4	420
Kingsport Electric Light Co., Ltd	Kingsport	Purchased		3	60	2,300	110	110		14
Lawrencetown Electric Light Commission	Lawrencetown	Water		1	60	2,200		110		
The Town of Liverpool	Liverpool	Water		2-3	60	2,400	220/550	110		
The Town of Louisburg	Louisburg	Purchased	D.C.			250	250	220		2
Lunenburg Gas Company, Limited	Lunenburg	Purchased		3	60	6,600	220	110	3	560
The Town of Mahone Bay	Mahone Bay	Water		1	60	2,300	116	110	3	98
The Gaspereau Valley Elec. Lt. Co., Ltd.	Melanson	Purchased		2-3	60	2,300	110	110	1	42
The Milton Electric Lt. Pr. & M'f'g. Co., Ltd.	Milton	Water		3	60	2,300		110		
Town of Middleton Elec. Lt. & Pr. Plant	Middleton	Water		3	60	2,300	220	110/115	1	248
Morristown Elec. Lt. & Power Co., Ltd.	Morristown	Water		3	60	2,300		110	1	22
Zwicker Electric Light & Power Co.	New Germany	Water		3	60	110	110	110		
Dominion Utilities Company, Ltd for County of Cape Breton	New Waterford	Purchased		2	25	2,200	110	110		768
Dominion Utilities Company, Ltd., for Town of New Waterford	New Waterford	Purchased		1	25	2,200	110	110		750
Oxford Electric Light & Power Company, Ltd.	Oxford	Water and steam		1-3	60	2,200	220	110		32
The Town of Parrsboro Electric Light Plant	Parrsboro	Steam		1	60	2,200		104		220
Canard Electric Light & Power Co., Ltd.	Port Williams	Purchased								63
Town of Pictou	Pictou	Steam		3	60	2,300	550/220/110	110	5	535
Riverport Electric Light Commissioners	Riverport	Purchased		3	60			110		156
Town of Shelburne	Shelburne	Water		3	60	2,300	220	110		
The Somerset Electric Light & Power Co., Ltd.	Somerset	Purchased			60			110		23
The South Berwick Electric Light Co., Ltd.	South Berwick	Purchased		3	60	2,200				24
Edison Electric Light & Power Company	Springhill			1-2	60	2,300	550	110	1	699
Pictou County Electric Company, Ltd	Stellarton	Steam		1-3	60	2,300	110/220	104/108/112	90	2,469
Acadia Coal Company, Ltd.	Stellarton	Steam		1-3	50	3,150	110/220	110	2	39
The Stewiacke Elec. Lt. & Pr. Co., Ltd.	Stewiacke	Steam		1-3	60	2,300	110	110		110
Cape Breton Electric Company, Ltd.	Sydney	Steam		1-2	60	2,200	220	110	150	4,787
Sydney Mines Electric Company, Ltd.	Sydney Mines	Steam		1-2	60	2,200	220	110		

APPENDIX L—Continued.

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
The Truro Electric Light Commission	Truro	Steam		3	60	2,300	110/220	110/220	45	1,339
Windsor Elec. Lt. & Pr. Company, Ltd.	Windsor	Steam		3	60	1,100		110	5	507
Wolfville Electric Commission	Wolfville	Steam		1-3	60	2,200	220	110	12	377
Yarmouth Light & Power Co., Ltd.	Yarmouth	Water		1-3	60	2,300	220	110	42	844
Paradise West Electric Light Co., Ltd.	Paradise	Water		1	60	2,300		110		30
Dominion Coal Company, Ltd.	Glace Bay	Steam		1-3	25	2,200	550	110	33	6
St. John, N.B.—										
Maine & N.B. Elec. Power Co., Ltd.	Aroostook Jct.	Water		3 & 1	60	11,000	550/220	110	2	70
Bathurst Electric & Water Power Co., Ltd.	Bathurst	Water		3 & 2	60	6,600	220	110	17	583
Town of Campbellton	Campbellton	Gas		3 & 1	60	2,300	110/220/550	110/220	25	860
C. M. Sherwood, Limited	Centreville	Water		D.C.		120		110		
Light, Water & Sewerage, D. A. Jackson, Supt.	Chatham	Oil		1 & 3	60	2,300	230	115	14	523
King Lumber Company, Ltd.	Chipman	Steam		D.C.		125	110	110		6
The Town of Dalhousie	Dalhousie	Gas		3	60	2,300	220	110	2	200
Dept. of Justice—Dorchester Penitentiary	Dorchester	Steam		1	60	2,300		110		30
Dorchester Development Co., Ltd.	Dorchester	Purchased		1	60	2,200	110	110		99
The Town of Edmundston	Edmundston	Water		3 & 1	60	2,200	550	110	3	600
Maritime Electric Co., Ltd.	Fredericton	Steam		1 & 2	60	2,200	110/220	110	40	1,590
The Town of Grand Falls	Grand Falls	Purchased		3 & 1	60	33,000	2200/220/110	110	6	185
Red Ball Garage	Hartland	Oil		1	60	110	110	110		16
A. & R. Loggie Company	Loggieville	Steam		D.C.		110	110	110		
Canadian Cottons Limited	Marysville	Steam		3 & 1	60	2,200	550	110		210
Moncton Tramways, Electric & Gas Co., Ltd.	Moncton	Steam		2	60	1,100	110/220/550	110	70	3,114
The Town of Newcastle	Newcastle	Steam		2	60	2,200	220	110		425
The Minto Coal Company, Ltd.	Northfield			3 & 2	60	2,300	220	110		26
Andover & Perth Electric Light Commission	Perth	Purchased		1, 2 & 3	60	11,000	110/220	110	11	170
Port Elgin Electric Light Company	Port Elgin	Steam		D.C.		220	220	220	61	480
Rts. & Rexton Elec. Lt. Commissioners	Richibucto	Water		3 & 1	60	2,200	220	110	2	125

The Eastern Electric & Development Co., Ltd.	Sackville	Steam and oil		3	60	2,300	220/110	220/110	7	342
The Shediac Elec. Lt. & Pr. Co.	Shediac	Water		3	60	2,200	2,200	110	1	113
St. Andrews Elec. Lt. & Pr. Co., Lt	St. Andrews	Purchased		1 & 3	60	2,200	2,200	220/110		136
Canadian Pacific Ry. Co. (Algonquin Hotel)	St. Andrews	Steam		3	60	2,200			1	
New Brunswick Power Company	St. John	Steam		1 & 3	60	2,300	220/110	107	402	8,462
St. Leonard Electric Co., Ltd.	St. Leonard	Purchased		1	60	110	110	110	2	97
The Sussex Manufacturing Co., Ltd.	Sussex	Steam		2	133	2,200		110		370
Maritime Electric Company, Ltd.	St. Stephen	Water		3 & 1	60	2,300	220	110	31	805
Woodstock Elec. Ry. Lt. & Pr. Co.	Woodstock	Water		3	60	2,200	550/220/110	100	4	700
Quebec—										
La Compagnie Electrique d'Amqui	Amqui	Water		3	60	2,200	550	110	2	200
Philibert Langlois	Armagh							110		58
Bay St. Paul Elec. Lt. & Pr. Co.	Baie St. Paul	Water		2	60	2,200		104		
La Municipalité du Village de Bernierville	Bernierville	Purchased		3 & 2			550	110	1	62
Ferdinand Fortin	Chambord	Purchased		2	60	115	110	110	2	122
La Compagnie de Pulpe de Chicoutimi	Chandler	Steam		3 & 1	60	600		110		231
Cie d'Eclairage et d'Energie Electrique du Saguenay	Chicoutimi	Water		3	60		55/220/110	110	50	900
La Cie Hydraulique de Portneuf, Limitée	Deschambault			3	60	6,600				
The Donacona Paper Co.	Donacona	Water		3	60	550	550	110	8	112
La Municipalité East Broughton	East Broughton			3	30			110	1	196
La Compagnie Centrale d'Electricité, Limitée	Iberville			3 & 2	60	2,200		110		
Eugène Côté	Isle Verte			3 & 2	60	2,300	220	110		42
La Ville de Jonquière	Jonquière	Purchased		3	60	2,200	2,200	110	3	139
Price Bros. Co., Ltd.	Kenogamie	Water		3	60	44,000	550	110		453
La Cie Electrique de St-Vital	Lambton	Purchased		1	60		110	110		73
Canadian Electric Light Company	Lévis	Water		3	60	10,500	110/550	110	282	3,463
Basin Electric Light and Power Co.	Montmagny	Water		3	60	2,300	110/220	110	3	591
Rouleau Limitée	Mont-Joli	Gas		3	60			110		220
Donohue Bros., Limited	Murray Bay	Water		3	60	4,400	500/550	110/220		237
La Municipalité du Village de Neuville	Neuville			2	60	57,000		110		70
La Cie Electrique Plessis	Plessisville			3	30		2,200	110	23	400
La Cie Chas. A. Julien, Limitée	Pont Rouge	Steam		3	60	2,300	550	110		58
The Quebec Railway, Light, Heat and Power Co.	Quebec	Purchased		3-2-1	64	2,000/5,500	440/220/110	110	6 70	13,445
Public Service Corporation of Quebec	Quebec	Steam		3-2-1	60	2,200	550/440/220	220/110	160	7,664
Beauce Electric Power Company	Sherbrooke	Purchased		1-3	60	15,000	550/220	100	14	607
*Albert Deblois	St. Anselme	Water		2	125	2,200		110		13
Hector Piché	St. Basile	Purchased		1	60			110		111
La Cie d'Energie Electrique de St. Côme	St. Côme	Purchased		1	60	6,600		110		
La Cie Hydraulique de St. Félicien	St. Felicien			3	60	2,200	110/220/550	110		100
Gédéon Gagné	St. George			1-2-3	60	6,600	220/550	110		1
La Cie d'Electricité de St. Prime	St. Prime	Water		3	60	75				79

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages.		Number of Meters.	
		Type	Horse Power				Power	Lighting	Power	Lighting
Municipalité Village St. Raymond	St. Raymond	Water		3	60	1,100	550/220	110	9	30
La Cie Roy Ltée	St. Ulric	Water		3	60	2,200		110		13
Robertsonville Electric Company	Robertsonville	Purchased		3-2	60	2,200	440	110		
Le Credit Municipal Canadien	Rimouski	Water		1-3	60	2,300	220/550/110	110/115		105
La Cité de Rivière du Loup	Rivière du Loup			2-3	60	2,200	110/220	110	7	1,100
La Ville de Roberval	Roberval			1	60	104/220		104		331
Thetford Mines Electric Co	Thetford Mines	Purchased		1-3	30	3,200	550	110	6	600
St. Frances Water and Power Co	Thetford Mines	Water		1-3	60	2,400	2,400	110	4	100
La Ville de Trois-Pistoles	Trois-Pistoles			3	60	2,300		110		102
Three Rivers—Con.										
Electric Service Corporation	Almaville	Hydro		1-3	60	2,200	110/220	110/220	2	131
Arthabaska Water & Power Co	Arthabaska	Purchased		1-3	30	2,200	220	110	2	181
Electric Service Corporation	Baie du Febvre	Hydro		1	30	2,200	220/110	220/110	3	68
Electric Service Corporation	Baie de Shawinigan	Hydro		1-3	60	2,200	220/110	110/220	5	54
North Shore Power Company	Batiscan	Water		1-3	60	2,200		110		33
Electric Service Corporation	Berthierville	Hydro		1-3	60	2,200	110/220	110/220	18	281
The Sorel Light & Power Co., Ltd.	Boucherville	Purchased		1-3	60	11,000	550	115	1	126
North Shore Power Company	Cap de la Madeleine	Water		3-1	60	2,200	550	110/220	7	1,223
North Shore Power Company	Champlain	Water		1-3	60	2,200	110/220	110/220	2	135
La Compagnie d'Eclairage de Yamachiche, Ltée	Charette	Purchased		1-3	60	13,000	220	110	1	68
The Sorel Light & Power Co., Limited	Contrecœur	Purchased		1-3	60	11,000	550	115	1	92
North Shore Power Company	Deschambault	Water		1-3	60	6,600	110/220	110		40
J. V. Picard	Grand'Mère	Purchased		1-3	60	2,200	220	110	2	200
La Cité de Grand'Mère	Grand'Mère	Purchased		3-1	60		220/550	110	29	1,491
La Cité de Joliette	Joliette	Hydro		1-3	60	2,400	120/250	104/110	40	1,750
North Shore Power Company	Lachevrotière	Water		1-3	60	2,200	2,200		1	
Electric Service Corporation	Lanoraie	Hydro		1	60	2,200	220/110	110/220	2	47
Brown Corporation	La Tuque			3-1	60	2,300	550	110	80	125
Shawinigan Water & Power Company	Montreal	Water		2-3	30 & 60	6,600	60,000/2,200		50	
Electric Service Corporation	Nicolet	Hydro		3-1	30	2,200	110/220	110/220	20	220

Electric Service Corporation	Pierreville	Hydro		3-1	30	2,200	110/220	110/220	12	132
Electric Service Corporation	Shawinigan Falls	Hydro		3-1	60	2,200	220/110	110/220	336	2,574
The Sorel Light & Power Co., Limited	Sorel	Purchased		3-1	60	11,000	550	115	40	1,300
North Shore Power Company	St. Alban	Water		3-1	60	6,600	110/220	110	1	76
North Shore Power Company	St. Angèle	Water		3-1	30	2,200	220	110	1	135
North Shore Power Company	Ste. Anne de la Pérade	Water		3-1	60	2,200	550	110/220	3	123
La Cie d'Eclairage de Yamachiche, Ltée	St. Barnabé	Purchased		3-1	60	13,000	220	110	1	82
North Shore Power Company	St. Basile	Water		3-1	60	2,200	550		2	
La Cie d'Eclairage de Yamachiche, Ltée	St. Boniface	Purchased		3-1	60	13,000	220	110		62
North Shore Power Company	St. Casimir	Water		3-1	60	6,600	550	110	16	297
La Cie d'Eclairage de Yamachiche, Ltée	St. Elie	Purchased		3-1	60	13,000	220	110		38
Corporation de St. Gabriel de Brandon	St. Gabriel de Brandon			3-2	60		250	110	5	275
North Shore Power Company	Ste. Geneviève	Hydro		3-1	60	2,200	550	110/220	8	127
Electric Service Corporation	St. Grégoire	Hydro		3-1	30	2,200	220/110	110/220	5	75
North Shore Power Company	St. Louis de France	Water		3-1	60	2,200	2,200		1	
The Sorel Light & Power Co., Limited	St. Joseph de Sorel	Purchased		3-1	60		550	115	2	110
North Shore Power Company	St. Marc	Water		3-1	60	6,600	550	110	6	139
North Shore Power Company	St. Maurice	Water		3-1	60	2,200	550/220	110	2	72
North Shore Power Company	St. Narcisse	Water		1-3	60	2,200	550/220	110/220	1	145
The Sorel Light & Power Co., Limited	St. Ours			3-1	60		550	115	2	97
La Cie d'Eclairage de Yamachiche, Ltée	St. Paulin	Purchased		3	60	13,000	220	110		62
La Cie d'Eclairage de Yamachiche, Ltée	St. Sévère			3-1	60	13,000	220	110		33
Electric Service Corporation	St. Séverin	Hydro		1	60	2,200	220/110	110/220	1	54
North Shore Power Company	St. Stanislas	Water		3-1	60	2,200	110/220	110	1	94
Electric Service Corporation	St. Tite	Water		3-1	60	2,200	220/110	110/220	22	356
North Shore Power Company	Three Rivers	Water		3-1	60	2,200	550	110/220	141	4,680
The Sorel Light & Power Co., Limited	Varennes	Purchased		3-1	60		550	115	2	98
The Sorel Light & Power Co., Limited	Vercheres	Purchased		3-1	60		550	115	3	116
Arthabaska Water & Power Co	Victoriaville	Purchased		3-1	30	2,200	2,200/220	110	18	427
Continental Heat & Light Co	Warwick	Purchased		3-1	60	2,200	220	110	1	122
La Cie d'Eclairage Yamachiche, Ltée	Yamachiche	Purchased		3-1	60	13,000	220	110	2	112
Laurentide Power Company, Ltd	Grand'Mère			3	60	6,600	6,600		7	

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Sherbrooke—										
La Municipalité du village d'Abestos	Abestos	Purchased		1-3	30		2,200	110		209
Southern Canada Power Company, Ltd.	Ayer's Cliff	Substation		1-3	60	2,300	550	110	6	161
Southern Canada Power Company, Ltd.	Beebe	Substation		1-3	60	2,300	550	110	9	165
Southern Canada Power Company, Ltd.	Bromptonville	Substation		1-3	60	2,300	550	110	6	251
Southern Canada Power Company, Ltd.	Capelton	Substation		1-3	60	2,300	550	110	1	23
Corporation of town of Coaticook	Coaticook	Water		1-3	60	2,200	550/220/110	110		810
Southern Canada Power Company, Ltd.	Compton	Substation		1	60	2,300	110/220	110	5	49
Westbury Electric Light & Power Company	Cookshire	Water		1-3	60	3,000	550	110	5	891
Corporation of The Village of Danville	Danville	Purchased		3	30	2,200	110	110	4	283
La Compagnie Champoux	Disraeli			2	60/125	1,200		110		
J. B. Parker	Dixville							110		
Southern Canada Power Company, Ltd.	Eastman	Substation		3	60	48,000			1	
Southern Canada Power Company, Ltd.	Eustis	Substation		1-3	60	2,300	550	110	1	18
Southern Canada Power Company, Ltd.	Foster	Substation		1-3	60	2,300	550	110	2	57
Southern Canada Power Company, Ltd.	Granby	Substation		1-3	60	2,300	550	110	28	1,237
Southern Canada Power Company, Ltd.	Graniteville	Substation		1-3	60	2,200	550	110	3	7
Southern Canada Power Company, Ltd.	Hatley	Substation		1-3	60	2,300	550	110		46
Southern Canada Power Company, Ltd.	Huntingville	Substation		1-3	60	2,200	550	110	1	14
Southern Canada Power Company, Ltd.	Kingsbury	Substation		1-3	60	2,300	550	110		38
Southern Canada Power Company,										

Ltd	Knowlton	Substation		1-3	60	2,300	550	110	2	231
Southern Canada Power Company, Ltd	Lennoxville	Substation		1-3	60	2,300	550	110	13	481
Southern Canada Power Company, Ltd	Magog	Substation		3	60	2,200			1	
La Corporation de la ville de Magog	Magog	Water		2	60	2,400	2,200	108		850
Mde O. V. Brouillette	Mansonville			2	100	110		110		6
Southern Canada Power Company, Ltd	Massawippi	Substation		1-3	60	2,300	550	110	1	27
La Compagnie d'Eclairage Electrique	Megantic	Gas		3	60	2,200	110	110		418
Southern Canada Power Company, Ltd	Melbourne	Substation		1-3	60	2,300	550	110	1	85
Southern Canada Power Company, Ltd	New Rockland	Substation		1-3	60	2,300	550	110		14
Southern Canada Power Company, Ltd	North Hatley	Substation		1-3	60	2,300	550	110	6	240
Southern Canada Power Company, Ltd	Richmond	Substation		1-3	60	2,300	550	110	12	615
Southern Canada Power Company, Ltd	Rock Island	Substation		1-3	60	2,300	550	110	19	308
Three Villages Building Association, Ltd	Rock Island	Water		D.C.		110	110	110		
Arthur Benoit	Roxton Falls			2	33	1,100		110		31
Canadian Telephone Company	Sawyerville	Purchased		3	60	2,200	550	110		60
Canadian Telephone Co., Bishop's Crossing Plt	Sawyerville	Purchased		3	60		550	110	1	134
A. G. Hurd	Sawyerville	Water		1	125	2,080		110		64
Scotstown Electric Light & Power Co	Scotstown	Water		3	60	2,200	550	110		5
City of Sherbrooke—Weedon Plant	Sherbrooke	Water		3	60	2,300	550/440	110	31	6,253
City of Sherbrooke—Frontenac Plant	Sherbrooke	Water		3	60	2,300	550/440	110	31	6,253
City of Sherbrooke—Rock Forest Plant	Sherbrooke	Water		3	60	6,600	550/440	110	31	6,253
Southern Canada Power Company, Ltd	Sherbrooke	Water		1-3	60	2,300	550	110	1	12
Southern Canada Power Company, Ltd	Stanstead	Substation		1-3	60	2,300	550	110	6	153
Corporation of Village of Sutton	Sutton	Purchased		3	60	6,600	550	110		160
Vermont & Quebec Power Corporation	Sutton	Water & Steam		3	60	2,300	6,600		10	1
Southern Canada Power Company, Ltd	Waterloo	Substation		1-3	60	2,300	550	110	16	406
Southern Canada Power Company, Ltd	Waterville	Substation		1-3	60	2,300	550	110	7	117
Southern Canada Power Company, Ltd	Way's Mills	Substation		1-3	60	2,300	550	110	3	18
Southern Canada Power Company, Ltd	West Shefford	Substation		1	60	2,300	550	110	3	76
La Corporation Ville de Windsor	Windsor			1-3	30	2,200	220/110	110	1	369

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Montreal—										
Southern Canada Power Company, Ltd.	Actonvale			1-3	60	2,300	550	110	8	205
Town of Baie d'Urfee	Baie d'Urfé	Purchased		2-3	60		2,200	110		
Ville de Beaconsfield	Beaconsfield	Purchased		2-3	60		2,200	110		7
Beauharnois Electric Company, Ltd.	Beauharnois	Purchased		1-3	60		220/110	110	13	1,023
Corporation of Town of Bedford	Bedford	Water & Steam		1	133	1,100		110		70
La Ville de Bekeil	Belœil	Purchased		2-3	60	25,000	550	110	10	386
Southern Canada Power Company, Ltd.	Beloeil	Purchased		3	60	2,300	550		3	
Bennett, Limited	Chambly Canton	Purchased		2 & 3	60	2,100	550/220/110	110	30	390
The Laval Electric Company	Charlemagne	Purchased		1-3	60		220/2,200	110	4	138
Mr. Donat Raymond	Côte de Liesse	Purchased		3	60	2,200		110		15
Southern Canada Power Company, Ltd.	Cowansville	Purchased		1-3	60	2,300	550	110	5	247
La Ville de Dorval	Dorval	Purchased		3	60		2,200	110		378
Southern Canada Power Company, Ltd.	Drummondville	Water		1-3	60	2,300	550	110	32	665
Southern Canada Power Company, Ltd.	Durham			1	60	2,300	220	110	1	88
The Town of Farnham	Farnham	Water & Steam		1-3	60	2,300	550	110	5	725
The Town of Greenfield Park	Greenfield Park	Purchased		3	60			2,200		240
Hemmingford Light, Heat & Power Co.	Hemmingford	Water		1	60	2,200		110		66
James Gordon Dunn	Huntingdon	Water		1-3	60	2,200	550	110		300
Southern Canada Power Company, Ltd.	Iberville	Purchased		1-3	60	2,300	550	110	20	450
The Laval Electric Company	Lachenaie	Purchased		1-3	60			110		100
Corporation of City of Lachine	Lachine	Purchased		1-3	60		1,100/550	110	70	3,239
Corporation Ville Laprairie	Laprairie	Purchased		1-3	60	2,200	550	110	7	290
The Laval Electric Company	Laval-on-the-Lake	Purchased		1-3	60		220/2,200	110	1	27
La Compagnie Electrique de Laurentides, Ltée	Laurentides	Water		1-3	60	6,600	550	110	1	990
The Laval Electric Company	L'Assomption	Purchased		1-3	60		220/2,200	110	4	164
The Laval Electric Company	L'Epiphanie	Purchased		1-3	60		220/2,200	110	2	137

The Laval Electric Company	Joliette	Purchased		3	60		220/2,200		2		
Corporation of Town of Marieville	Marieville	Purchased		1-2	60	2,200	550	110			292
The Laval Electric Company	Mascouche	Purchased		1-3	60			110			104
Montreal Public Service Corporation	Montreal	Purchased		1-3	60		550	110	395		13,400
Montreal Light, Heat & Power Consolidated	Montreal	Water & Steam, Purchased		1-2-3	63	2,200	115	115-230	2,412		132,534
J. B. Walsh	Ormstown	Water		1-3	60	2,300		110			83
Town of Pointe Claire	Pointe Claire	Purchased		1-3	60		2,200	110	11		775
Southern Canada Power Company, Ltd	Providence			1-3	60	2,300	550	110	1		171
The Laval Electric Company	Repentigny	Purchased		1-3	60			110			56
The Laval Electric Company	Rosemere	Purchased		1-3	60			110			129
Southern Canada Power Company, Ltd	Rougemont	Purchased		1-3	60	2,300	550	110	1		83
The Sorel Light & Power Co., Ltd	Sorel			1-3	60	11,000	550	220/110	1		126
Stanbridge East Electric Light Plant	Stanbridge East			D.C.				110			15
Southern Canada Power Company, Ltd	Sweetsburg			1-3	60	2,300	550	110			54
Ville Ste. Agathe des Monts	Ste. Agathe des Monts	Water		3	60	2,200	220/550	110	10		475
Town of Ste. Anne de Bellevue	Ste. Anne de Bellevue	Purchased		1-3	60	2,200	500/220/110	110	12		496
Southern Canada Power Company, Ltd	St. Antoine			1-3	60	2,300	550	110	1		33
Southern Canada Power Company, Ltd	St. Césaire	Purchased		1-3	60	2,300	550	110	8		130
La Compagnie d'Electricité de St. Constant, Ltd	St. Constant	Purchased		3	60	550	550	110	2		74
Southern Canada Power Company, Ltd	St. Cyrille	Water		1-3	60	2,300	550	110	7		92
The Laval Electric Company	St. Eustache	Purchased		1-3	60		220/2,200	110	1		206
The Laval Electric Company	St. François de Sales	Purchased		1-3	60		220/2,200	110	3		49
Pierrefonds Electric Company	Ste. Geneviève	Purchased				2,300	220	110	1		145
Southern Canada Power Company, Ltd	St. Germain	Purchased		1-3	60	2,300	550	110	4		84
La Corporation du Village de St. Hilaire	St. Hilaire	Purchased		2-3	60	2,200	110	110			105
Southern Canada Power Company, Ltd	St. Hilaire	Purchased		1-3	60	2,300	550	110	2		50
La Cie d'Energie Electrique de St. Hubert	St. Hubert	Purchased		1-3	60	25,000	2,200	110			50
Southern Canada Power Company, Ltd	St. Hugues	Purchased		1	60	2,300	110/220	110	2		98
Southern Canada Power Company, Ltd	St. Hyacinthe	Purchased		1-3	60	2,300	550	110	75		2,000
Mde Jos. Vauchesteing	St. Jovite			3	60	2,300		110			30
Southern Canada Power Company, Ltd	St. Johns	Purchased		1-3	60	2,300	550	110	50		1,600

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Montreal—Con.										
La Ville de Saint-Jérôme	St. Jérôme	Steam		1-2-3	60	6,600	550/220/110	110	3	1,107
Southern Canada Power Company, Ltd	St. Joseph			1-3	60	2,300	550	110	2	82
City of St. Lambert	St. Lambert	Purchased		1-3	60	2,200	110/550	100	8	1,017
Southern Canada Power Company, Ltd	Ste. Madeleine	Purchased		1-3	60	2,300	550	110	2	63
Southern Canada Power Company, Ltd	St. Mathias	Purchased		1	60	2,300		110		42
The Laval Electric Company	St. Paul l'Ermite	Purchased		1-3	60		220/2,200	110	1	80
N. Bélanger	St. Pie	Water		2-3	60	2,200		110		40
W. Clark, Limited	St. Rémis	Steam		1-3	60	2,200	220	110	15	178
Village of St. Rock	St. Rock	Water		2	60	2,200		110		66
Southern Canada Power Company, Ltd	St. Rosalie			1-3	60	2,300	550	110	2	91
The Laval Electric Company	Ste. Rose	Purchased		1-3	60		220/2,200	110	4	547
The Laval Electric Company	Ste. Thérèse	Purchased		1-3	60		220/2,200	110	10	598
The Canadian Light & Power Company	St. Timothee	Water		1-3	60	2,200	48,000	110	2	54
La Municipalité de St. Vincent de Paul	St. Vincent de Paul			1-3	60	2,300	2,300	110	1	193
Valleyfield Electric Company	Valleyfield	Water		3	60	2,300	110/220	110/220	5	1,205
La Lumière Electrique de St. Julie de Vercheres	St. Julie de Verchères	Gas		D.C.		220	220	220		
Corporation of the City of Verdun	Verdun	Steam		3	60	2,300	220/110	110	7	3,708
Corporation of Westmount Light & Power Dept	Westmount	Steam		1-3	60	2,300	550	110	399	3,051
Ottawa—										
Public Utilities Commission	Alexandria	Hydro		3	60	27,000	4,000	110/220	8	305
Police Village of Alfred	Alfred	Steam		D.C.		110	110	110		59
Electric Light Commission	Almonte	Water		3	60	2,200	550/220	115	5	523
Hydro Electric System	Apple Hill	Hydro		3	60	44,000	220	110	1	38
Galetta Electric Power & Milling Co. Ltd	Arnprior	Hydro		3	60	2,300	550	110/220	12	868

Albert MacLaren	Buckingham	Water	2 & 1	60	2,300		110		
G. E. Higginson	Calumet	Water	1	133	1,100		110		
James Wilson	Campbell's Bay	Water	3	60	2,300		110		77
Western Quebec Power Co. Ltd	Cascades Point	Water	3	60	2,300	550	110	2	37
J. W. Coupal	Casselman	Water	3	60	2,300	440	110		1
Public Utilities Commission	Carleton Place	Water	3	60	2,200	220/550	220/110	20	8
Western Quebec Power Co. Ltd	Carillon	Water	3	60	2,300	550	110		29
Western Quebec Power Co. Ltd	Cedars	Water	3	60	2,300	550	110		105
Hydro Electric System	Chesterville	Hydro	3	60	4,000/2,300	110/220	110	3	178
Village of Cobden	Cobden	Water	3	60	2,300	2,200	110	2	111
Western Quebec Power Co. Ltd	Como	Water	3	60	2,300	550	110	3	14
St. Lawrence Power Co. Ltd	Cornwall	Water	3	60	2,200	11,000/550	110	8	214
Stormont Elec. Lt. & Power Co. Ltd	Cornwall	Water	3	60	2,200	550/220/110	110		1,458
Childerhose Power Company	Eganville	Water	3	60	2,200	220	110		66
Freeman I. Cross	Farm Point	Water	3	60	4,400	110/550	110		185
Fassett Lumber Co. Ltd	Fassett	Water	3	60	440		110		
Hawkesbury Elec. Lt. & Pr. Co. Ltd	Grenville	Water	3	60	10,000	550/220	110		37
Riordon Company, Limited	Hawkesbury	Water	3	60	16,500	550	110/220	2	39
Municipality of Village of Hudson	Hudson Heights	Purchased	3	60	2,200	550/220	110	8	225
The Hull Electric Company	Hull	Water	3	60	2,200&11,000	210/550	110	30	3,083
Western Quebec Power Company, Ltd	Isle Cadieux	Water	3	60	2,300	550	110		14
Municipality of Village of Iroquois	Iroquois	Water	3	60	2,200	550/440/220	110		
Beach Hydro Electric System	Iroquois	Hydro	3	60	2,200	2,200	110/220		32
Lachute Electric Light System	Lachute	Water	3	60	2,200	550	110	2	820
Municipality of Village of Lancaster	Lancaster	Hydro	3	60	2,300		110		67
K. Marston	L'Orignal	Hydro	1	60	2,100		110		24
Public Utilities Commission	Lanark	Hydro	1	60		110	110	3	99
Police Village of Martintown	Martintown	Hydro	1	60	2,200		110		36
The Maniwaki Electric Co. Ltd	Maniwaki	Water	3	60	2,200	550	110	5	2
Corporation of Maxville	Maxville	Hydro	3	60	4,000	550/220	110	2	124
Laurentian Water & Power Co	Mont-Laurier	Hydro	3	60	2,200	440/220	110	2	79
Argenteuil Lumber Company, Ltd	Morin Heights	Water	1	60	1,100		110		33
Electric Light & Power Company	Morrisburg	Water	3	60	2,300	110	110		
Ottawa Electric Company	Ottawa	Steam & Water	2 & 1	60	2,300	214/428	107	412	20,831
Ottawa & Hull Power and M'Tg. Co. Ltd	Ottawa	Water	2 & 3	60	2,200 11,000			1	
Hydro Electric Commission	Ottawa	Water	3 & 1	60	11,000	440/550	110	190	11,345
Papineauville Electric Company	Papineauville	Water	3 & 1	60	2,300	110/550	110	2	155
W. H. Edwards	Pakenham	Water	1	133	1,000		1,000-110		
Electric Light Company, Limited	Pembroke	Water	3	60	2,500	2,200	110	4	1,288
Hydro Electric System	Perth	Hydro	3 & 1	60	4,400	550/220	110	20	645
Western Quebec Power Company Ltd	Pointe Fortune	Water	3 & 1	60	2,300	550	110		48
National Hydro Electric Co. Ltd	Pointe Fortune	Water	3	60	2,200		110		
Corporation of Pointe-Gatineau	Pointe-Gatineau	Purchased	1	60		2,200	104		14
Calabogie Light & Power Co.	Renfrew	Water	3 & 1	60	6,600	550	110	1	73
The Town of Renfrew	Renfrew	Purchased	2 & 3	60	2,200	220/440/550	110	1	973
Western Quebec Power Company Ltd	Rigaud	Water	3	60	2,300	550	110	11	147

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Shawville Light Plant	Shawville	Gasoline		D.C.		70		60		82
Hydro Electric System	Smith's Falls	Hydro		3	60	2,200	2,200/550	110/220	38	1,444
Western Quebec Power Company Ltd.	St. Andrews East	Water		3	60	2,300	220 550	110	1	102
Western Quebec Power Company Ltd.	St. Eugène	Water		3	60	2,300	550	110		64
Martintown Rural District	Toronto	Hydro		3	60	110,000		110		24
Nepean Rural District	Toronto	Hydro		3	60	2,200	220	110/220	1	70
Vankleek Hill Electric Co. Ltd	Vankleek Hill	Purchased		3	60	550/2,200		115		182
Western Quebec Power Co. Ltd.	Vaudreuil Station	Water		3	60	2,300	550	110	4	161
Western Quebec Power Co. Ltd.	Vaudreuil Village	Water		3	60	2,300	550	110	4	90
Williamsburg Hydro Electric System	Williamsburg	Purchased		3 & 1	60		220/110	110	1	48
Winchester Hydro Electric System	Winchester	Purchased		3 & 1	60		220	110	2	265
Chesterville Rural Hydro District	Winchester	Hydro		1	60		110/220	110		7
Belleville—										
Bancroft Light & Power Company	Bancroft	Water		1	60	100/125	110	110		
Thorah Township	Beaverton	Hydro		3	60		220	110	1	8
Beaverton Hydro Electric Commission	Beaverton	Hydro		1-3	60		220	110	12	310
J. P. Lett and Bro	Bedford Mills	Water		3	60	4,000	220	110		1
Hydro Electric Power Com. of Ontario	Belleville	Water		1-3	60	44,000	550/220/110	110/220	77	2,826
Corporation of Bloomfield	Bloomfield			3	60	2,000	80	2,500	3	95
The Electric Light Commission	Bobcaygeon	Water		3	60	2,300		110		
Hydro Elec. Power Com. of Ontario	Bowanville	Hydro		1-3	60	44,000	550/220	220/110	25	815
Village of Buchin	Buchin	Hydro		1-3	60		220	110	2	35
Public Utilities Commission	Brockville	Hydro		1-3	60	2,200	550/220	110	65	2,002
Hydro Electric Power Com. of Ontario	Brighton	Hydro		1-3	60	44,000	550/220	110	6	449
Hydro Electric Power Com. of Ontario	Brooklin	Water		1-3	60	4,200	550	110/220	30	161
Brock Township	Cannington	Hydro		1-3	60	4,000	220	110/220	18	19
Hydro Electric Power Com. of Ontario	Cannington	Hydro		1-3	60	25,000	220	110/220	11	245
Twp. of Eldon, Hamlet of Lorneville	Cannington	Hydro		1-3	60	4,000	220	110	1	10
Campbellford Water & Light Com.	Campbellford	Water		1-3	60	2,200	550/220	110	12	857
Cardinal Electric Light Co.	Cardinal	Steam		3	60	240	220	110		51
Hydro Electric Power Com. of Ontario	Cobourg	Hydro		1-3	60		220/440/550	110/220	46	1,067
G. M. Peebles Estate	Colborne	Hydro		1-3	60	44,000	220	110	3	250

Hydro Electric Power Com. of Ontario	Deseronto	Hydro	1 3	60	2,300	220/550	115	11		316
Board of Water, Light & Power Com	Fenelon Falls	Water	3	60	550	550	110			
Frankford Electric Light Co	Frankford	Purchased	3	60	2,200	220/110	110	5		154
Gananoque Elec. Lt. & Water Supply Co. Ltd	Gananoque	Water & Steam	3	60	2,400	500	115	35		514
Fowlds Company Limited	Hastings	Water	2	60	2,200	220	110			6
Havelock Hydro Electric Com	Havelock	Hydro	3	60	44,000	220/550	110			320
Hydro Electric Power Commission	Kemptville	Water	1-3	60	44,000	110/220	110	3		250
Public Utilities Commission	Kingston	Hydro	1-3	60	2,200	550	110/220	121		3,931
Village of Kirkfield	Kirkfield	Hydro	1-3	60		220	110			34
Lakefield Hydro Electric Com	Lakefield	Hydro	1-3	60	6,600	550	110	1		225
Hydro Electric Power Com	Lindsay	Water	1-3	60	550	4,160/550/220	110	60		1,910
Geo. E. Roddeck	Lyndhurst	Water	1-3	60	2,200		110			4
Corporation of Village of Madoc	Madoc					220	220	6		1
Marmora Hydro Electric Commission	Marmora	Hydro	1	60		220	110	1		153
The Rideau Power Company Ltd.	Merrickville	Water	3-1	60	600	600	110			125
Hydro Electric Power Com. of Ontario	Millbrook	Hydro	3-1	60	44,000	110/220	110/220	1		160
Hydro Electric Power Commission	Napanee	Hydro	3-1	60	4,160	220/550	115	19		721
Hydro Electric Power Commission	Newburgh	Hydro	3-1	60	4,160	220/550	115	2		107
Hydro Electric Power Commission	Newcastle	Hydro	3-1	60	44,000	220/110	220/110	3		165
Hydro Electric Power Commission	Norwood	Hydro	3-1	60	44,000	220	110/220	3		205
Hydro Electric Power Commission	Orono	Hydro	1	60	2,200	220/110	220/110	4		150
Hydro Electric Power Commission	Omemee	Hydro	3-1	60		220	110/220	5		120
Hydro Electric Power Commission	Oshawa	Hydro	3-1	60	4,200	550	110/220	76		2,804
Peterborough Utilities Commission	Peterborough	Purchased	3-1	60	6,600/2,200	220/550/2,200	110/220			5,541
Picton Public Utilities	Picton	Hydro	1-3	60	2,200	220/550	110/220	31		864
Hydro Electric Power Commission	Port Hope	Hydro	1-3	60		110/220/2,200	110/220	25		1,092
Corporation of Port Perry	Port Perry	Steam	1	133	1,100	1,100	110			166
Water & Light Commissioners	Prescott	Hydro	1 3	60		220	110	20		572
Corporation of Stirling	Stirling	Hydro	1-3	60	44,000	115/230	115/230			5
Hydro Electric Power Commission	Sunderland	Hydro	1-3	60	25,000	220	110/220	2		114
Frank Anglin	Sydenham		3	60	2,300		110			80
A. B. Carscallen, Limited	Tamworth	Water			110		110			
Hydro Electric Power Com. of Ontario	Trenton	Water	1-3	60		220/550/2,200	110	75		1,300
Hydro Electric Power Com. of Ontario	Tweed	Hydro	1-3	60	4,160	550/220/110	110	14		320
The Town of Uxbridge	Uxbridge		1	125	1,120		104			170
J. H. Gooderich	Warkworth	Water	2-1	60	2,200	110	110			30
The Public Utility Commission	Whitby	Hydro	3-1	60	4,000/2,200	550/220	110	12		675
Woodville Hydro Electric Dept	Woodville	Hydro	3-1	60	25,000	220	110/220	3		112
Wellington Public Utilities	Wellington	Hydro	3	60	2,000	80	2,500	4		215
Hydro Electric Power Commission	Bloomfield	Hydro	1-3	60	2,400	110/220	110	3		95
Toronto—										
Public Utility Commission	Alliston	Hydro	3	60	2,200		110	15		355
Cataract Electric Company, Ltd.	Alton	Purchased	3 & 1	60		220	110			62
Wenger Milling Company	Ayton	Water			125	220/550	125			3

APPENDIX L—Continued.

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Hydro Electric Power Commission	Arthur	Hydro		3	60				6	160
Town of Aurora	Aurora	Purchased		3	25	4,000	550	110/220	11	527
Bala Electric Lt. & Power Co.	Bala	Water		3	60	2,200	220/110	110		1
Barrie Electric Light Dept.	Barrie	Purchased		1 & 2	60	2,300	2,300/220/110	110	22	1,760
Hydro Electric Power Commission	Bolton	Hydro		3 & 1	60		550/220	110	20	167
Village of Beeton	Beeton	Hydro		3	60		550	110/220	2	109
Corporation of Bracebridge	Bracebridge	Water		2	60	2,200	2,200/110	110/220		351
Village of Bradford	Bradford	Hydro		3	60		550	110/220	2	161
Village of Brampton	Brampton	Hydro		3	25	13,000	550	110	30	1,100
Cataract Electric Company Ltd.	Cataract	Water		3	60	2,200	220	110		
Geo. Clendenan	Clarksburg	Water		3	60	2,300	2,200	110		60
G. W. Collins	Chatsworth	Hydro		3	60		220	110	1	72
Village of Coldwater	Coldwater	Hydro				2,200	550	110	4	125
Public Utilities Commission	Collingwood	Purchased		3	60	2,200	2,200/550/220	220/110	55	1,389
Cookstown Hydro Electric System	Cookstown	Hydro		3	25		220	110	2	99
John M. Hood	Creemore	Hydro		3	60		220	110	6	170
J. M. Davidson	Drayton	Hydro		3	25		550	110	4	152
Dundalk Hydro System	Dundalk	Hydro		3	60		220	110/220	3	166
Hydro Electric Commission	Durham	Hydro		3	60	22,000	220/550	110	7	302
Village of Elmvale	Elmvale	Hydro		3	60	2,200	220	110	5	158
Village of Elora	Elora	Hydro		3	25	13,200/4,000	550	110	3	265
Cataract Electric Company Ltd.	Erin	Purchased		1	60		220	110	1	87
Fergus Hydro Electric	Fergus	Hydro		3	25	13,000	550/220	110	16	400
Village of Flesherton	Flesherton	Hydro		1	60		220	110	1	101
Electric Light & Water Commission	Gravenhurst	Water		3	60	6,600	2200/550/220	110	15	475
Grand Valley Hydro Electric System	Grand Valley	Hydro		3	60	22,000	220/550	110	2	146
Board of Light and Heat Commissioners	Guelph	Hydro		3	60	2,200	550	110/220	102	4,004
Holstein Hydro Electric System	Holstein	Hydro		3	60	22,000	220	110	1	45
Hydro Commission	Hanover	Hydro		3	60	22,000	4,000/2,200	220/110	20	650
Hydro Electric Commission	Harriston	Hydro		3 & 1	25	4,400	550	110	7	293

Public Utilities Commission	Huntsville	Hydro		3	60		110/220/ 440/550	110	5	429
Hydro Electric Power Commission	Islington	Hydro	3 & 1		25	4,000	550	110	15	1,735
Markham Hydro System	Markham	Water	3 & 1		25	2,200	220/550	110	6	213
Thomas McDonald	MacTier	Gasoline	D.C.			120		110		13
Village of Markdale	Markdale	Hydro		3	60	2,200	220	110	8	200
Albert Dike	Mount Albert	Gas.—	D.C.			230	230	230		
Water and Light Commission	Mount Forest	Water	3 & 1		60	22,000	220	110	14	375
Hydro Electric Power Commission	Moorefield	Hydro		3	60		550	110	2	46
Georgian Bay, M. & Pr. Co	Meaford	Water and Steam		3	60	2,300	110/220/ 2,300	110	9	431
Public Utilities Commission	Mimico	Hydro	3 & 1		25	4,000	550	110/220	9	993
Midland Water & Light Com	Midland	Hydro		3	60	2,200	220	110	48	1,300
Hydro Electric Commission	Neastadt	Hydro	3 & 1		60		220	110/220	4	79
The Tower of Newmarket	Newmarket	Purchased	3 & 1		25	2,200	550	110/220	10	802
Public Utilities Commission	New Toronto	Hydro	3 & 1		25	13,200	550/2,200	110/220	14	704
Cataract Electric Company Limited	Orangeville	Purchased	3 & 1		60		220	110		163
Orangeville Hydro Commission	Orangeville	Hydro	3 & 1		60	4,000	220	110/220	7	304
Water, Light & Power Commission	Orillia	Water	1, 2, 3		60	2,200	220/440/550		10	369
Public Utilities Commission	Owen Sound	Steam and Hydro	3 & 1		60	2,200	550	110/220	96	2,249
Municipal Corporation of Parry Sound	Parry Sound	Water		3	60	2,200	2,200	110/220	20	891
Water and Light Commission	Penetanguishene	Water	3 & 1		60		110/220/ 550/2,200	110/220	28	464
G. W. Gordon	Port Credit	Hydro	3 & 1		25		2,200	220/110	5	300
Toronto Twp. Hydro Electric System	Port Credit	Hydro	3 & 1		25	13,000/2,200	220/550	110	13	580
Hydro Electric Commission	Port McNicoll	Hydro	3 & 1		60	2,200/110	220	110	1	130
Village of Priceville	Priceville	Hydro	3 & 1		60	20,000	2,300	110		26
Board of Police Village Trustees	Rockwood	Purchased	3 & 1		25	13,000	550	110	4	130
Municipality of Richmond Hill	Richmond Hill	Purchased	3 & 1		25		550	110/220	10	245
Public Utilities Commission	Scarboro	Hydro	3 & 1		25		550	110	8	1,009
Shelburne Hydro Commission	Shelburne	Purchased	3 & 1		60		220	110	8	284
South River Electric Company	South River	Water	3 & 1		60	4,000	550	110		
Stayner Hydro Electric Commission	Stayner	Hydro	3 & 1		60	4,400	220	220/110	7	215
Stouffville Electric Light Plant	Stouffville	Gas		1	60	2,200		110		200
Hydro Electric Power Commission	Streetsville	Hydro		3 & 1	25	12,000	550	110/220	4	1
Corporation of Streetsville	Streetsville	Water	3 & 1		60	2,300	110/330	110	3	110
A. J. Lowick & Son	Sutton West	Water	D.C.			220		220		
Thornbury Public Utility Commission	Thornbury	Water	3 & 1		60	2,200	220	110		144
Police Village of Thornton	Thornton	Hydro		3 & 1	60	2,200		110		45
Childs' Limited	Toronto	Purchased	D.C.				220	110	1	61
Municipality of Hornings Mills	Toronto	Hydro	3 & 1		60		220	110/220		29
Toronto Suburban Railway Co	Toronto	Purchased	3 & 1		25	2,200	220/550	110	50	1,925
Toronto Power Company	Toronto	Water		3	25	12,000	12,000/ 60,000/ 90,000		20	
Toronto and Niagara Power Co	Toronto	Purchased	3 & 1			12,500	D.C. 115/ 230/555	110	6,815	23,000

APPENDIX L—Continued.

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Monarch Supply Company, Limited	Toronto	Steam		D.C.		250	110/250	220/110	10	53
Toronto and York Radial Railway	Toronto	Purchased		3 & 1	25		2,200/550	110/220	18	630
Toronto Hydro Electric System	Toronto	Hydro		3	25	13,200	D.C. 250/500/4,100			
							2,200/550	110/220	2,820	79,103
Flesherton Rural District	Toronto	Hydro	3 & 1		60		220	110/220		12
Nottawasaga Rural District	Toronto	Hydro		3 & 1	60		220	110/220		54
Corporation of Town of Trout Creek	Trout Creek	Oil		D.C.		120		110		35
Corporation of Tottenham	Tottenham	Hydro		3 & 1	60		550/220	110	3	143
Woodbridge Hydro Electric System	Woodbridge	Hydro		3 & 1	25	13,200/4,000	550	110/220	6	70
Woodbridge Hydro Elec. Com	Woodbridge	Hydro		3 & 1	25	13,200/4,000	550	110/220	5	151
Water Power and Light Commission	Weston	Hydro		3 & 1	25		550	110/220	14	1,166
Township of Tay	Victoria Harbor	Hydro		3 & 1	60	22,000	220	110	3	85
Village of Victoria Harbour	Victoria Harbor	Water		1	60	2,200		110		140
Hamilton—										
Acton Hydro Commission	Acton	Hydro		3-1	25	2,200	550/220	110	14	367
Public Utilities Commission	Ancaster	Hydro		3-1	25	2,200	550-220	110-220	4	443
Ayr Hydro Electric System	Ayr	Hydro		3-1	25		550/220	110	5	151
Police Village of Baden	Baden	Hydro		3-1	25	13,000	4,000	110	6	98
Hamilton Cataract Pr., Lt. and Traction Co., Ltd	Beamsville	Water		3-1	66⅔	2,400	220	110	8	371
Western Counties Electric Co., Ltd	Brantford	Water		3-1	66⅔	2,200	220	110	122	1,862
Brantford Hydro Electric System	Brantford	Hydro		3-1	25	26,000	550/220	110/220	82	5,071
Bronte Electric Lt. and Power Com	Bronte	Purchased		3	66⅔	2,200	220	110	2	132
Hamilton Cataract Pr., Lt. and Traction Co., Ltd	Burlington	Water		1-2-3	66⅔	2,400	220	110	21	1,787
Hydro Electric System	Burford	Hydro			25	2,200	220/550	100/200	2	167
Village of Caledonia	Caledonia	Hydro		3	25		550	110/220	9	134
Hydro Electric Power Commission	Chippawa	Hydro		3-1	25	12,000	2,200	110	2	176
The Delhi Light and Power Co. Ltd	Delhi			3-1	60	2,300	220/2,200	110	11	144
Dunnville Hydro Electric System	Dunnville	Hydro		3-1	25	2,200	550	110/220	17	384
Public Utilities Commission	Dundas	Water		3-1	25	12,000	550/220	110	50	1,050
Dundas Electric Company Limited	Dundas	Water		3-1	66⅔	2,400	220	110	5	115

Elmira Public Utilities Commission	Elmira	Hydro		3-1	25	2,200	550	220/110	22	443
Public Utilities Com. of Galt	Galt	Hydro		3-1	25	13,200	550	110/220	107	3,379
Hydro Electric Dept.	Georgetown	Hydro			25	4,000	220/550	110/220	31	601
Hamilton Cataract Pr., Lt. and Traction Co., Ltd.	Grimsby	Water		3-1	66⅔	2,400	220	110	27	700
Hagersville Hydro Elec. System	Hagersville	Hydro		3-2	25	2,200	2,200	110	12	264
Twp. of Brantford Hydro Elec. System	Hamilton	Hydro		3-1	25	4,000	550	110/220	4	570
Hamilton Cataract Pr., Lt. and Traction Co., Ltd.	Hamilton	Water		3-2-1	66⅔	2,400	220	110	402	60
Hamilton Elec. Lt. and Power Company Ltd.	Hamilton	Water		3-1	66⅔	2,400		110		5,737
Hamilton Hydro-Electric System	Hamilton	Water		3-1	25	13,200	220/550	110/220	636	22,668
Hydro Electric Commission	Hespeler	Hydro		3-1	25		550	110	16	600
Kitchener Light Commission	Kitchener	Hydro		3-1		13,200	550/2,200	110/220	183	4,378
Lynden Hydro System	Lynden	Water			12,200	13,200	220	110	1	75
Public Utilities Commission	Merritton	Hydro		3	25	12,000	550/220	110	3	603
Milton Hydro Electric Commission	Milton	Water		3	25	2,200	550/220	110/220	15	380
New Hamburg Electric Dept.	New Hamburg	Hydro		1-3	25	2,200	550/220/110	110	10	350
Hamilton—										
The Hydro Electric System	Niagara Falls	Hydro		25			110/220	110	89	3,586
Canadian Niagara Power Company	Niagara Falls	Water		3-1	25	12,000	22,000	110	53	1,159
Stamford Hydro Electric System	Niagara Falls	Hydro		3	25		2200/440/220	110/220	6	784
Niagara Hydro Electric Commission	Niagara	Hydro		3-1	25	2,200	220	110	6	390
Oakville Water & Light Commission	Oakville	Water		2-1	60⅔	2,200	2,200	110/220	24	1,005
Paris, Water & Elec. Light Commission	Paris	Hydro		3-1	25	2,200	2,200/550	110	21	1,001
Public Utilities Com. of Pt. Dalhousie	Port Dalhousie	Hydro		3-1	25		110/220/550	110/220	10	400
Port Colborne Hydro Electric System	Port Colborne	Hydro		3-1	25	2,200	220	110/220	15	719
Port Dover Hydro Electric System	Port Dover	Hydro		3-1	25	4,000	220	110/220	2	101
Preston Light & Water Commission	Preston	Hydro		3-1	25		2,200/550	220/110	42	1,282
Simcoe Hydro Electric System	Simcoe	Hydro		1-3	25	26,000	2,200	110/220	18	398
Municipal Light & Power	Smithville	Hydro		1-3	60	2,200	110/220/550	110	10	153
Louth Twp. Hydro Electric System	St. Catharines	Purchased		1	25	2,200		110		51
Lincoln Electric Light & Power Co., Limited	St. Catharines	Purchased		3-1	66⅔		220	110	80	1,094
Grantham Twp. Hydro Elec. System	St. Catharines	Purchased		1	25		110/220	110	3	206
Public Utilities Com. of City of St. Catharines	St. Catharines	Purchased		3-1	25		220/550	110	85	4,424
A. E. Green	St. George	Hydro		3-1	25	4,000	550	110	4	111
Waterdown Hydro Electric System	Waterdown	Hydro			25	110/220	110/220		3	180
Waterford Hydro Commission	Waterford	Hydro		3	25	4,400	550	110	262	120
Waterloo Water & Light Commission	Waterloo	Hydro		1-3	25	13,200	550	110/220	60	1,280
Welland Electrical Company, Ltd	Welland	Hydro		1-3	66⅔		220	110	12	1,740
Hydro Elec. Power Com. of Welland	Welland	Hydro		1-3	25	2,200	220/2,200	110	44	1,511
Wellesley Light & Power Commission	Wellesley	Hydro		1-3	25	4,000	550	110	4	112
Corporation of Town of Thorold	Thorold	Water			25 & 60	2,200		110		1,109
London—										
Hydro Electric Commission	Ailsa Craig	Hydro		3-1	25	4,000	550	110/220	5	128
Village of Alvinston	Alvinston	Hydro			25		550	110		156

APPENDIX L—Continued

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
London—Continued.										
Hydro Electric Power Commission	Amherstburg	Hydro		3-1	25		220/550	110/220	7	620
Rock Glen Power Co., Limited	Arkona			3	60	2,200	2,200/220	110	2	90
Aylmer Public Utilities Com	Aylmer	Hydro			25		110	110	10	580
Hydro Electric System	Beachville	Hydro		3-1	25	2,200	550	110	3	97
Blenheim Hydro Electric System	Blenheim	Hydro		1-3	25		110/220/550	110	11	452
Bothwell Hydro Electric System	Bothwell	Hydro		3-1	25	2,200	550	110/220	6	180
Municipality of Blyth	Blyth	Steam		1	133	1,100	110	110		75
Brigden Hydro Electric System	Brigden	Hydro					550	120	3	110
Hydro Electric System	Burgessville	Hydro		3	25	22,000	550		1	57
Robt. J. Thuell	Brussels	Steam		2	60	220		220		160
Hydro Electric Power Com	Canard River			1	25			110/220		9
Cargill, Limited	Cargill	Water				240	240	110		
Clinton Public Utilities	Clinton	Hydro		3	25	26,400	550	110	8	430
Public Utilities Commission	Chesley	Hydro		3-1	60	22,000	550/220	110	14	359
Comber Hydro Commission	Comber	Hydro					550	110	2	108
Hydro Electric Power Commission	Cottam	Hydro		1	25		220	110/220	3	56
Hydro Electric System	Dashwood	Hydro		3-1	25	4,400	550	110	1	66
Delaware Police Village	Delaware	Hydro		3	25			110		53
Police Village of Dorchester	Dorchester	Hydro		3-1	25	2,200/1,100	2,200/1,100	110/220	4	116
Dresden Hydro Electric System	Dresden	Hydro		3-1	25		220/550	110	12	358
Drumbo Hydro Electric System	Drumbo	Hydro		3-2	25	110	220	110	1	87
Police Village of Dublin	Dublin	Hydro		3-1	25		550	110	3	40
Dutton Hydro System	Dutton	Hydro		3-1	25	2,200	550	110	3	232
Hydro Electric System	Elmwood	Hydro		3-2	60		220	220	2	54
Embro Hydro Electric Plant	Embro	Hydro		3	25	13,000	220	110	110	4
Hydro Electric Power Commission	Essex	Hydro		3-1	25		220/550	110/220	5	333
Public Utilities Commission	Exeter	Hydro		3-1	25	4,400	550	110/220	7	372
Electric Light Company, Limited	Formosa	Purchased		3-2	60	2,250	220	110		29
Forest Public Utilities Commission	Forest	Hydro		3-1	25	26,400	550	220/110	14	425
Chatham Hydro Electric System	Chatham	Hydro		3-1	25	26,400	550	115	130	3,572
Hydro Electric Power Commission	Glencoe	Hydro		3	25	4,400	550	220	3	205
Water & Light Commission	Goderich	Hydro		3-1	25		550	110	17	1,018
Granton Hydro Electric Com	Granton	Hydro		1	25		4,000	110	1	86
Hydro Electric Power Commission	Harrow	Hydro		3-1	25		220	110/220	5	163

Hydro Electric System	Hensall	Hydro	3-1	25		550	110	6	160
Hydro Electric System	Highgate	Hydro	1	25		110/220/550	110	6	89
Public Utilities Commission	Ingersoll	Purchased	3-1	25	13,000	2200/550/220	110/220	55	125
Dawson & Chapman	Inwood	Oil	D.C.		110		110		15
Water and Light Commission	Kincardine	Purchased	3-1	60	2,300	220/550	110/220	4	372
Hydro Electric Power Commission	Kingsville	Hydro	3-1			220	110/220	4	580
Co-operative Lighting Co., Ltd	Komoka	Oil	D.C.		110	110	110		9
Village of Lambeth	Lambeth	Purchased	1	25	2,200	550	110/220	1	110
Hydro Electric Power Com	Leamington	Hydro	3-1	25		220	110/220	8	1,070
Public Utilities Commission	Listowel	Purchased	3-1	25	4,400	550	220/110	18	628
Helena Costume Company Power Dept	London	Steam			220/110/ 13,000	220	110		3
Public Utilities Commission	London	Purchased	3-1	25	2,200	2,300/550/ 220	110	520	15,048
Greene Swift, Limited	London	Steam & Hydro	D.C.		125	500	110	1	8
Lucan Hydro Commission	Lucan	Hydro	3-1	25		550	110	10	175
James McHarley	Merlin	Gas	D.C.		110		110		8
Public Utilities Commission	Mitchell	Purchased	3-1	25		550	110	16	399
Electric Light Company, Ltd	Mildmay	Purchased		60				1	103
Hydro Electric Power Commission	Milverton	Hydro		25				3	213
Hydro Electric Commission	Mount Brydges	Hydro		25	2,300	550	110	1	102
Dereham Hydro Electric System	Mount Elgin	Hydro		25		220	110	45	125
Norwich Electrical Dept	Norwich	Hydro	3-1	25		2,200/550/220	110	7	360
Oil Springs Hydro Electric System	Oil Springs	Hydro	3-1	25		550	110	32	60
Otterville Hydro Electric System	Otterville	Hydro		25				4	101
Hydro Electric Commission	Palmerston	Hydro	3-1	25		550	110	7	350
Paisley Electric Light Company	Paisley	Water	1	133	2,200	110	110		27
Hydro Electric System	Parkhill	Hydro						2	202
Hydro Electric Commission	Petrolia	Hydro	1-3	25	4,000	550/220/110	110	61	690
Hydro Electric System	Plattsville	Hydro				550	110	2	101
Hydro Electric Department	Port Stanley	Hydro	1-3	25		2,200/220	110	5	229
Public Utilities Commission	Ridgetown	Hydro	1-3	25	4,400	500	110/220	10	485
Ripley Hydro Electric System	Ripley	Hydro	1-3	60	4,400	560/550	100	1	103
Rodney Hydro Electric System	Rodney	Hydro	1-3	25	2,300	550	110/220	2	175
Sarnia Hydro Electric System	Sarnia	Hydro	3-1	25		220/440/550	110	79	4,137
Public Utility Com. of Seaforth	Seaforth	Purchased	3-2	25		110/220/550	110	18	577
The Sangeen Electric Light & Power Co	Southampton	Water	3-1	60	6,600	550/440/220	110	10	642
Corporation of Village of Springfield	Springfield	Hydro	3	25	2,200	550	110	2	70
Hydro Electric Commission	St. Thomas	Hydro	3-1	25	13,200	550	110	115	4,149
Water, Light & Heat Commission	St. Mary's	Purchased	3-1	25	13,000	550/220	220/110	34	928
Public Utilities Commission	Strathroy	Purchased	3-1	25	13,200	550	110	23	707
Public Utility Commission	Stratford	Purchased		25	2,200	220/550	110	135	3,900
Hydro Electric Commission	Tara	Hydro	3	60	4,400	4,400	110/220	7	120
Hydro Electric Commission	Tavistock	Hydro	3-1	25	26,400	550	110/220	4	252
Jno. Nivins	Teeswater	Hydro	1	60	110	2,200	110	3	170
Hydro Power Commission	Tilbury	Hydro	3-1	25	26,000	220/550	110	8	245
Hydro Electric Commission	Tillsonburg	Hydro	3-1	25	13,000	550	110	19	718

APPENDIX L—Concluded

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Public Utilities Commission	Thamesville	Hydro		3	25				4	260
Hydro Electric System	Thamesford	Hydro		1-3	25	4,400	220/550	110	5	108
Geo. Coultis and Son	Thedford	Steam		1	133	1,100		110		100
Thorndale Hydro Electric System	Thorndale	Hydro		3	25	4,000	2,200/550	110/220	3	68
Ripley Rural Power District	Toronto	Hydro		3	60					1
Hydro Electric System	Wallaceburg	Hydro		3-1	25	26,400	550/220	110	36	908
Walkerton Quarry Rural Power District	Walkerton	Hydro		3	60					4
Walkerton Hydro-Electric System	Walkerton	Hydro		3	25	4,000	550/220	110/220	82	3,341
Walkerton Electric Light & Power Co., Ltd	Walkerton	Water		3	60	2,300	550/220/110	110	19	447
Public Utilities Commission	Warford	Hydro		1-3	25	26,400	220/550	110/220	7	232
West Lorne Hydro Electric Dept	West Lorne	Hydro		1-3	25	13,200	550/110	110	3	161
Marven White	Wheatley	Gas		2	60	220		110		
Sauble Falls Light & Power Co.	Wiarton			1-3	60	6,600	110/220	110	4	235
Wingham Utilities Commission	Wingham	Water		1-3	60	2,300	550	110/220	27	490
Windsor Hydro Electric System	Windsor	Hydro & steam		1-3	25 & 60	2,200	110/220	110/220	355	10,860
Woodstock Public Utilities Com	Woodstock	Hydro		1-3	25 & 60	2,200	550/220	110	54	2,450
Wyoming Hydro Electric System	Wyoming	Hydro			25		550	110	4	125
Hydro Electric System	Zurich	Hydro		1-3	25	4,400	550	110	2	98
Sudbury—										
Fred Deagle	Blind River	Water		1-3	60	2,400	220/110	110		
Northern Ontario Lt. & Pr. Co., Ltd	Cache Bay	Water		1-3	60	2,200	220/110	110		76
Hydro Electric Power Com. of Ontario	Callender	Water		1	60	2,200	220/550	110/220	2	121
Chapleau Electric Lt. & Pr. Co	Chapleau	Water		3	60	2,300	2,300/550	110	2	409
Northern Ontario Lt. & Pr. Co., Ltd	Charlton	Water		1-3	60	2,300	550	110	3	69
Northern Ontario Lt. & Pr. Co., Ltd	Cobalt	Water		1-3	60	11,000/2400	110/220	110	42	1,448
The Public Utilities Commission	Cochrane	Gas		1-3	60	2,200	220	110	31	500
The Lorne Power Company, Ltd	Coniston	Water		3	60	2,200	44,000			
The Huronian Company, Limited	Copper Cliff	Water		1-3	25/60	2,400	2,200/550	110	14	

Elk Lake Power Company	Elk Lake	Water		1-3	60	550	550/110	110	4	24
Northern Ontario Lt. & Pr. Co., Ltd.	Englehert	Water		1-3	60	2,300	550	110	2	213
The Spanish River Pulp & Paper Mills, Ltd.	Espanola	Water		1-3	60	2,200	550	110/220		152
George and Ritching	Gore Bay	Gas		D.C.		115		115		7
Northern Ontario Lt. & Pr. Co., Ltd.	Haileybury	Water		1-3	60	11,000/2,400	220	110	55	873
The Stone Lumber Co., Limited	Hiltonbeach			1	125	2,300	2,280	108		
Abitibi Power & Paper Company, Ltd.	Iroquois Falls	Water		3	60	13,200	600/2,200	110/220		162
Town of Little Current	Little Current	Water		3	60	2,300	110	110		125
The Mattawa Elec. Lt. & Pr. Co., Ltd.	Mattawa			1-3	60	2,200	220	110		7
Northern Ontario Lt. & Pr. Co., Ltd.	New Liskeard	Water		1-3	60	11,000/2,400	220	110	32	486
Hydro Elec. Power Com. of Ontario	Nipissing	Water		1	60	2,200	220/550	110/220		14
Hydro Elec. Power Com. of Ontario	North Bay	Water		1-3	60	2,200	220/550	110/220	55	2,534
Hydro Elec. Power Com. of Ontario	Powasson	Water		1-3	60	2,200	220/550	110/220	3	160
City of Sault Ste. Marie, Water & Light Department	Sault Ste. Marie	Water		1-3	60	2,200	220	110	125	5,400
The Great Lakes Power Company, Ltd.	Sault Ste. Marie	Water		3	60/25	2,300	2,300	2,300	5	4
Moose Mountain, Limited	Sellwood	Steam		1-3	60	550	550	110	11	24
Northern Ontario Lt. & Pr. Co., Ltd.	South Porcupine	Water		1-3	25	12,000	220	110	16	267
Corporation of Town of Sudbury	Sudbury	Purchased		2-3	60	2,300	220	110	28	2,354
The Wahnapital Power Company, Ltd.	Sudbury	Water		2-3	60	2,300	15,000	110		
Corporation of Town of Sturgeon Falls	Sturgeon Falls	Water		3	60	2,200	550	110/220	3	525
The Town of Thessalon	Thessalon	Steam		1	125	1,040		104		210
Northern Canada Power Company, Ltd.	Timmins	Water			25	12,000	12,000		6	
Northern Ontario Lt. & Pr. Co., Ltd.	Timmins	Water		1-3	25	12,000	220	110	120	1,410
Compagnie d'Energie Electrique de Verner	Verner	Gasoline				120	120			18
Fort William—										
Hydro Electric Power Commission	Cameron Falls	Water		3	60	12,000	110,000		2	
Dryden Paper Co., Limited	Dryden	Water		3 & 1	60	550	550	110		
Town of Dryden	Dryden			3	60	600	550	110	29	208
Langstaff, Schurg and Co., Ltd.	Emo	Steam				120		110		37
Corporation of Town of Fort Frances	Fort Frances	Water		3 & 2	60	6,600	220	110	20	820
Ontario and Minnesota Power Company, Ltd.	Fort Frances	Water		3	60	6,600	550	110/220	5	4
Corporation of Municipality of McIrvine	Fort Frances	Purchased								17
Kaministiquia Power Company, Ltd.	Fort William	Water		3	60	3,600/4,400	550	110/220		
City of Fort William	Fort William	Purchased		3 & 1	60		220/550	112/224	60	5,461

APPENDIX L—Continued

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage.	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power.	Lighting
Winnipeg—Con.										
Corporation of Town of Kenora	Kenora	Water		3	60	2,400	2200/220/110	220/110	39	1,464
Public Utilities Commission	Port Arthur	Water		3 & 1	60	2,200	220	220/110	64	3,707
Town of Rainy River	Rainy River	Steam		3	60	2,300		110		277
Canadian National Railways	Sioux Lookout	Steam		3	60	2,200	550	110	1	
The Town of Sioux Lookout	Sioux Lookout	Steam		3 & 1	60	2,200	2,200	110		46
Winnipeg—										
Suburban Rapid Transit Co	Assiniboia	Purchased							6	206
Town of Beauscjour	Beauscjour	Purchased		3	60		550	110/220	1	65
City of Winnipeg Hydro Electric System	Bird's Hill	Hydro		1/3	60		550	110	5	58
Boissevain Electric Light Plant	Boissevain	Steam		2	60	2,200		110		143
Canada Gas and Electric Corporation	Brandon	Steam		3	60	2,300	2,300	120	102	2,811
The Town of Carberry	Carberry	Steam		1–2		2,300		115		215
Manitoba Power Commission	Carman	Purchased		1–3	60		2,200	110	4	295
The Town of Dauphin	Dauphin	Steam		2	60	2,200	220	110	43	915
Hamblin Bros	Dominion City	Gasoline				115	115	115		24
Gladstone Electric Light & Power Department	Gladstone	Purchased		1–3	60	550	550	110	1	149
A. Coblentz & Son	Gretna	Purchased		1	60	2,200		110		15
Leander Lawlor	Kenton	Oil		D.C.		120		120		5
Winnipeg Electric Railway Co	Kildonan	Purchased							18	1,986
Killarney Electric Light & Power Department	Killarney	Steam		1–3	60	2,300	110	110	1	120
Citizens' Electric Company	Lenore	Oil				115		115		
Town of Melita	Melita	Steam		D.C.				110/220		145
Manitoba Power Commission	Minnedosa	Oil and water		1–3	60	2,200	440/120	110		322
Manitoba Power Commission	Morden	Purchased		1–3	60		2,200	110		245
Town of Neepawa	Neepawa	Steam		1–3	60	2,300	2,200	115	11	402
Manitoba Power Commission	Portage la Prairie	Purchased							2	
Town of Rapid City	Rapid City	Gas		3	60	2,300		115		103
Municipality of Pipestone	Reston	Gas				120		120		105
Town of Rivers	Rivers	Purchased			60	550	220	110	1	144
Manitoba Power Commission	Roland	Purchased		1–3	60		2,200	110	1	112
Russell Electric Light Department	Russell	Gas		3	60	2,200		110		168

Selkirk Electrical Department	Selkirk	Purchased		1-3	60	2,200	220/550	110	15	850
Village of Shoal Lake	Shoal Lake	Oil		D.C.		250	220	110	2	125
Winnipeg, Selkirk & Lake Winnipeg Railway Co	Selkirk	Purchased		1-3	60	13,200	2,200/550	110/220	30	443
Town of Souris	Souris	Gas		D.C.		220/250	220	110	9	204
City of Winnipeg Hydro Electric System	Stony Mountain	Hydro		1-3	60		550	110	3	25
Winnipeg Electric Railway Co	St. Boniface	Purchased							139	2,855
Suburban Rapid Transit Company	St. James	Purchased							17	3,072
B. T. Tucker	Ste. Rose du Lac	Gas				115/125		115/125		54
Winnipeg Electric Railway Company	St. Vital	Purchased							4	796
City of Winnipeg Hydro Electric System	Transcona	Purchased		1-3	60		550	110	18	1,114
C. Weichman	Treherne	Steam				220		220		50
The Town of The Pas	The Pas	Oil		1-3	60	2,300	220	110/220	3	384
Suburban Rapid Transit Company	Tuxedo	Purchased							2	12
Manitoba Power Commission	Virden	Oil		1 3	60	2,200	440/220	110	1	292
Union Traders' Limited	Winkler	Oil				125				70
The Traders' Building Association, Ltd	Winnipeg	Hydro		1	60		220	110	1	232
City of Winnipeg Hydro Electric System	Winnipeg	Water		1-3	60	6,600	550	220/110	1,213	43,805
Winnipeg Electric Railway Company	Winnipeg	Hydro		3	60	2,300	2,300	110	999	14,070
Winnipeg, Selkirk & Lake Winnipeg Railway Company	Winnipeg	Purchased							39	393
Suburban Rapid Transit Company	Winnipeg	Purchased							45	3,264
Regina—										
Jacob Heinrichs	Aberdeen	Gas		D.C.				32		2
A. D. Mills	Abernethy	Oil		D.C.		110				23
The Town of Assiniboia	Assiniboia	Oil		3	60	2,300	220	110	3	200
Arcola Light & Power Company	Arcola	Oil		3-1	60	2,200		110/220		120
Balcarres Power & Light Company, Ltd	Balcarres	Oil		D.C.		125	125	125		80
The Town of Battleford	Battleford	Purchased		3	60	2,300	220	115	11	231
E. E. Matchke	Borden	Oil		D.C.		110		110		24
Corporation of Town of Broadview	Broadview	Gas and oil		3-1	60	2,300		110		170
Town of Canora	Canora	Oil		3-1	60	2,200	220	110	1	200
Town of Carlyle	Carlyle	Steam		3-1	60	2,300	110	110		75
Herman Schwartz	Central Butte			D.C.		115		115		
Harvy T. Howe	Craik	Gas		D.C.		110		110		
Harry Brown	Cupan			D.C.		125		125		70
Town of Davidson	Davidson	Gas		3-1	60	2,200	220	110		138
R. J. Kelso	Drinkwater			D.C.		120		110		25
Village of Earl Grey	Earl Grey	Gas				115	115	115		28
Crawford & Jones	Eastend	Oil		D.C.		125		125		39
The Town of Estevan	Estevan	Steam		3-1	60	2,200	220	110	26	424
Geo. A. Petrie	Eyebrow			D.C.		125	120	120		38
Saxton & Spears	Fleming	Gas		D.C.		110/125		115		12
The Town of Govan	Govan	Oil		D.C.		110	110	110		112

APPENDIX L—Continued

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Regina—Con.										
A. Huel & Sons	Gravelbourg	Oil		D.C.		120	110	110		18
The Town of Grenfell	Grenfell	Gas		3	60	2,200		110		195
Joseph Hutchinson	Gull Lake	Gas		3-1	60	2,300		115		150
A. P. Oliver	Hafford	Gas				125		115		8
W. H. Sharpe	Herbert	Gas		3	60	2,400		110		150
The Town of Humboldt	Humboldt	Steam		3-1	60	2,300	550/220	110	11	403
Town of Indian Head	Indian Head	Steam		3-1	60	2,200	104/208	104		311
Ituna Electric Light & Power Co., Ltd	Ituna	Oil		D.C.		125		125		29
The Town of Kamsack	Kamsack	Oil		3-1	60	2,200		100/110		338
William Humphrys	Kelliher	Oil		D.C.		120		110		21
Hourd & Bayne	Kennedy			D.C.		110		110		22
The Town of Kindersley	Kindersley			3-1	60	2,200	220	110		227
Henry Mann	Kipling	Oil		D.C.		110	110	110		60
C. Stordahl	Lang	Oil		D.C.		125		125		50
The Town of Langham	Langham	Gas		3-1	60	2,200		110		99
Lashburn Electric Company	Lashburn	Oil				110		110		50
Oswald Schnieder	Leader	Gas		D.C.				120		10
Village of Leslie	Leslie	Oil				125				23
Henry Ringhand	Limerick	Oil		D.C.				110		
Lipton Automobile & Implement Co., Ltd	Lipton			D.C.		125		110	2	14
W. Johnson & Son	Lloydminster	Steam		D.C.		220	220	220/110	2	90
Ray Eldred	Lockwood			D.C.		120				13
Town of Lumsden	Lumsden			3	60	2,200		110		131
Maple Creek Light, Power & Milling Co., Ltd	Maple Creek	Steam		3	60	2,200		110		240
Village of Marcelin	Marcelin	Oil		D.C.		110	110	110		35
Town of Melfort	Melfort	Oil		3-1	60	2,200	220	110	12	393
Town of Melville	Melville	Gas		3	60	2,300	110/220	110	20	550
Arthur Townsend	Milestone	Oil		D.C.		110		110		85
Town of Morse	Morse	Gas		3	60	2,300	2,300	110		85
N. Rotshtein	Mossbank	Oil		D.C.		120		110		
City of Moose Jaw	Moose Jaw	Steam		3-1	60	2,300	220	110	206	4,704

Municipality of Town of Nokomis	Nokomis	Oil			D.C.			110	110	110		123
Corporation of North Battleford	North Battleford				3-1	60	2,300	220	110	45	824	
Municipality of North Regina	North Regina					60	2,200		110		53	
The Town of Outlook	Outlook	Gas			3	60	2,200	220	110		230	
Municipality of Oxbow	Oxbow				3	60	2,300		2,200/110		85	
Pelly Electric Light & Power Co., Ltd	Pelly	Oil			D.C.		115	115	115		48	
Alex. T. Thompson	Ponteix	Oil			D.C.		120		120		5	
Municipal Electric Light & Power Plant	Prince Albert	Steam			3-1	60	2,200	110/220/550	110	118	1,595	
Punniehy Electric Light Co., Ltd	Punniehy	Oil			D.C.		110		110		25	
Qu'Appelle Electric Light Company	Qu'Appelle	Gas			D.C.		440	220	220		90	
The Town of Radisson	Radisson				D.C.		115	115	115		72	
McCallum Hill Building, Ltd	Regina				D.C.		220/110	220	110	1	53	
Regina Power and Light Department	Regina	Steam			3-1	60	2,200	110/220/2,200	110/220	800	7,931	
Saskatchewan Co-operative Creameries, Ltd	Regina				3-1	60	2,200	220	110	1	5	
Riverhurst Power & Light Co., Ltd	Riverhurst				D.C.		125				41	
Rosetown Electric Light & Power Co., Ltd	Rosetown	Oil and gas			3	60	2,300		110		145	
Town of Rouleau	Rouleau	Gas			3	60	2,300		110		175	
Town of Saltcoats	Saltcoats	Gas			3	60	2,200	110	110		93	
City of Saskatoon	Saskatoon	Steam			2	60	2,300	220	110	696	6,875	
Town of Scott	Scott	Oil			3	60	2,200	220	110		50	
The Citizens Electric Light Company, Ltd	Semans				D.C.		110		110		82	
Shaunavon Light, Power & Milling Co., Ltd	Shaunavon	Steam			3-1	60	2,200	220	110	1	220	
Mike Korchynski	Sheho				D.C.		125	115	115			
Corporation of Town of Strasbourg	Strasbourg	Gas			3-1	60	2,200	110	110		137	
Bailey Bros	Stenen	Steam			D.C.		110	110	110			
Grenfell Milling & Elevator Company	Summerberry				D.C.		110		110		15	
City of Swift Current	Swift Current	Gas and oil			3-1	60	4,160	220/110	110	134	926	
Carrott River Valley Mills, Ltd	Tisdale	Steam			3	60	550	550/110	2,200/110		150	
Lee Brothers	Toga	Oil			D.C.		125	110	110		30	
L. C. McBride	Tompkins	Gas			D.C.				120			
Geo. A. Turner	Tugaske				D.C.		32	32	32			
Corporation of Town of Unity	Unity	Oil			3-2	60	2,300	250	110	2	127	
Village of Verwood	Verwood				D.C.		110		110		30	
A. F. Gerein	Vebank				D.C.		110	110	110	3	35	
Village of Viscount	Viscount	Oil			D.C.		110		110		58	
Town of Vonda	Vonda	Gas			3	60	2,200	2,200	110		74	
Town of Wadena	Wadena	Gas			3	60	2,300		110		149	
W. P. C. Macdonald	Wapella				D.C.		125	125	125		41	
Christopherson & Maller	Watson				D.C.		115		115		1	
The Watrous Electric Company	Watrous	Gas			3	60	2,300	220	220/110		113	
Corporation of Weyburn	Weyburn	Steam			3-1	60	2,200	220	110	61	797	
Whitewood Power & Light	Whitewood	Oil			D.C.		115				39	

APPENDIX L—Continued.

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922.

District and Company.	Address.	Prime Mover.		Phases of System.	Frequency of System.	Generator Voltage.	Service Voltages.		Number of Meters.	
		Type.	Horse Power.				Power.	Lighting.	Power.	Lighting.
Regina—Con.										
The Village of Wilcox	Wilcox	Gas		D.C.		110			2	67
The Town of Wilkie	Wilkie	Oil		3-1	60	2,200	220	110	2	211
The Town of Wolseley	Wolseley	Gas		3-1	60	2,300	110	110	2	191
Henderson & Jones	Woodrow	Gas		D.C.		125		125		14
The Town of Yellow Grass	Yellow Grass	Gas		D.C.		125		110		84
The Town of Yorkton	Yorkton	Oil		3-1	60	2,200	550	110	100	950
W. J. Lay	Biggar	Gas		1-3	60	2,300	220	110	1	228
Calgary—										
Blackie Light & Power Co	Blackie	Gasoline				150				3
The Town of Blairmore	Blairmore	Purchased					110	110	3	325
West Canadian Collieries, Limited	Blairmore	Steam		3	60	2,200	220	110	4	60
Bankhead Mines, C.P.R	Banff	Steam		3	60	2,300	250/500	110		477
The Calgary Water Power Co., Limited	Calgary	Water & Steam		3	60	2,200	210	105	50	2,100
Electric Light & Power Dept	Calgary	Steam		3	60	2,300	220	110	653	16,184
United Electric & Engineering Co	Calgary	Gas		1-3	60	2,200	220	110	6	163
Weno Power & Light Company	Calgary	Purchased		1-3	60	2,300	220	110	1	4
Bowness Improvement Company	Calgary	Purchased				2,200	220	110	2	10
The Town of Cardston	Cardston	Steam		2	60	2,200		110		273
The Town of Carmangay	Carmangay			D.C.		240		110		60
The Town of Claresholm	Claresholm	Gas		1-3	60	2,300	220	110	1	190
International Coal & Coke Co., Ltd	Coleman	Steam		3	60	2,200	2,200	250		
The Town of Coronation	Coronation	Steam		2 & 3	60	2,200		110		143
The Town of Didsbury	Didsbury	Steam		1-3	60	2,300	220	110	1	183
Drumheller Power Company, Limited	Drumheller	Steam				2,300	220	110	14	
The Town of Gleichen	Gleichen	Steam				120/125		115/120		72
A. Lindstrom	Hanna	Steam		3	60	2,200		110		205
Hillcrest Collieries, Limited	Hillcrest	Steam		3	60	2,300		110		13
The Town of High River	High River	Steam		1-3	60	2,200	220	110	1	300
The Town of Innisfail	Innisfail	Steam		3	60	2,200		110		161
The City of Lethbridge	Lethbridge	Steam		1-2	60	2,200	220/110	110	159	2,922
The Town of Macleod	Macleod	Gas			60	2,200	220	110	16	365
The City of Medicine Hat	Medicine Hat	Steam		2-3	60	2,300	220/550	110	478	1,009
The Municipality of Nanton	Nanton	Gas		2-3	60	2,200		110		160

The Olds Electric Power Company	Olds	Gas		1-3	60	2,300	220	110		185
Peterson Motor Company, Ltd	Oyen	Steam		1	60	125		110		36
Municipality of Town of Pincher Creek	Pincher Creek	Steam		3	60	2,200		2,200		220
Raymond Electric Company	Raymond	Steam		3	60	2,200	220	110	6	239
Calgary Power Company, Limited	Seebe	Water		3	60	12,000	600			
The Canada West Coal Co., Ltd	Taber	Steam		3	60	2,300	220	110		148
Vulcan Electric Light Service	Vulcan	Steam		1-3	60	2,300	220	110	1	163
Edmonton—										
Bashaw Light & Power	Bashaw	Gas								50
G. E. Snydner	Botha							110		16
A. Noske	Broderheim	Gas				110				13
The Town of Camrose	Camrose	Steam		3 & 1	60	2,300	220	110	30	470
City Electric Light & Power Dept	Edmonton	Steam		3 & 1	60	2,300	220/2,200	110/220		15,918
Canadian National Railways	Edson	Steam		3	60	550	550	110	1	
The Edson Light & Power Co., Ltd.	Edson	Purchased		1	60	110/220	110			240
North American Collieries, Ltd	Evansburg			D.C.		250	250	250		
Municipality of Fort Saskatchewan	Fort Saskatchewan	Purchased		2 & 1	60	2,200		110		194
W. R. Abraham	Fort Saskatchewan			D.C.		220	220	110	1	
Town of Grand Prairie	Grand Prairie	Oil		3	60	2,300	110/220	110		121
Hardisty Electric Light Co	Hardisty	Oil		D.C.		440/220		220		35
C. W. Lathmer	Irma	Oil				120	110	110		13
Electric Light Department	Lacombe	Steam		3 & 1	60	2,300	220/110	110	12	360
Lamont Electric Power Plant	Lamont					120		110		56
The Town of Leduc	Leduc	Gas		3	60	2,200	220	110		105
Alcide Bodard	Manaville	Gas						110		27
Mountain Park Coal Company, Ltd	Mountain Park			D.C.		250	250	250	1	
Mundane Electric Light Co	Mundane	Gas				110	110	110		40
The Brazeau Collieries, Ltd	Nordegg	Steam		3	60	2,300	440/220	110		45
Corporation of Town of Ponoka	Ponoka	Purchased								200
Dept. of Public Works Provincial Asylum	Ponoka	Steam		3	60	2,300				
W. Ironfield & S. C. Agnew	Provost	Gas		2		240		120		44
George Brady	Ranfurly	Oil		D.C.		120		115		4
Western General Electric Co., Ltd	Red Deer	Steam		3 & 1	60	2,300	220	110	28	508
Ryley Garage	Ryley	Gas				110	110	110		3
The Corporation of Stettler	Stettler			3 & 1	60	2,200	220	110	30	400
M. C. Hammond	Tofield	Gas				110		110		
The Town of Vegreville	Vegreville	Steam		3 & 1	60	2,200	220	110	13	282
Municipality of Town of Vermilion	Vermilion			3 & 1	60	2,200	110/220	110	16	299
McAthey & Jones	Viking	Gas				110	110	110		11
The Town of Wainwright	Wainwright	Steam		3	60	2,300		110/220	1	200
Corporation of Wetaskiwin	Wetaskiwin	Gas & Steam		2 & 1	60	2,300	220	110	23	495
Nelson—										
Corporation of City of Armstrong	Armstrong	Water		2 & 3	60	2,300	110/220/440	110	12	284
Adams River Lumber Company, Ltd.	Chase	Steam		1	125	1,100		110		48
Crowsnest Pass Elec. Lt. and Pr. Co., Ltd	Coal Creek	Steam				220		220		

APPENDIX L—Continued

LIST of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during the Fiscal Year ended March 31, 1922

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Corporation of City of Cranbrook	Cranbrook	Steam		2	60	2,200	220	110	11	684
Okanagan Saw Mills, Limited	Enderby	Steam		1	60	2,200		110		211
Corporation of City of Fernie	Fernie	Steam				2,300	220	110	15	700
Golden Lt. Pr. & Water Co., Limited	Golden	Steam		3	60	2,200	110	110		1
Corporation of City of Grand Forks	Grand Forks	Purchased		3 & 1	60		2,200	110	14	375
Corporation of City of Greenwood	Greenwood	Purchased		3 & 1	60		220/2,000	125		46
Corporation of City of Kaslo	Kaslo	Water		2	60	1,100		115/110		1
Corporation of City of Kelowna	Kelowna	Steam		3 & 1	60	2,300	110/220	110	69	774
Crowsnest Pass Electric Lt. and Power Co., Ltd	Michel	Steam				220		220		
Nakusp Electric Light and Power Co.	Nakusp	Water		1	60	1,150		110		125
The Okanagan Securities Co., Ltd	Naramata	Steam		D.C.		110		110		4
Corporation of City of Nelson	Nelson	Water		3 & 1	60	12,000	220/440/550	110	61	1,318
The Denver Light & Power Co., Ltd	New Denver	Water		1	60	2,300		110		10
Corporation of District of Peachland	Peachland	Water		3 & 1	60	2,200		110		
Corporation of District of Penticton	Penticton	Purchased		3 & 1	60	4,600	220	110	54	1,026
Corporation of City of Revelstoke	Revelstoke	Water		3 & 1	60	2,300	2,200/220	110	12	838
West Kootenay Pr. & Light Co., Ltd	Rossland	Water		3	60	2,500	60,000/20,000	2,200	43	810
Rossland Water & Light Company	Rossland	Purchased		3 & 1	60		110	110		
South Kootenay Water Power Co	Rossland	Purchased								
Cascade Water Power & Light Co., Ltd	Rossland	Purchased		3	60	2,200				
Okanagan Water Power Company	Rossland	Purchased								
The City of Salmon Arm	Salmon Arm	Oil		3	60	2,200	220	110		82
Old Enderby Rd. Electric Light Syndicate	Salmon Arm	Oil		1 & 3	60	2,200	220	110	8	
The Sandon Water-Works & Light Co	Sandon	Water		D.C.		120/125	120/125	120/125		
The Sicamous Hotel, C.P.R	Sicamous	Steam		D.C.		120	120	120		3
Corporation of District of Summerland	Summerland	Purchased		3	60	4,400	220	110		230

Consolidated Mining & Smelting Co. of Canada, Ltd.	Trail	Purchased		3	60		110	110	12	23
City of Vernon, B.C.	Vernon	Oil		1 & 3	60	2,200	220/110	110	300	855
Vancouver—										
Canada Copper Corporation, Ltd.	Allenby	Purchased		3	60		550/220	110		45
The Granby Cons. Mining Smelting & Power Co., Ltd.	Anyox	Steam		3	60	2,200	440/220	220/110	76	273
Ashcroft Water Electric and Improvement Co.	Ashcroft	Oil		3	60	2,300	220	110		95
Britannia Mining & Smelting Co., Ltd.	Britannia Beach	Water		3 & 1	60	6,600	440/220	110		110
Chilliwack Electric Company, Ltd.	Chilliwack	Gas		D.C.		110	110	110		11
Clayburn Company, Limited	Clayburn	Purchased		3	60		2200/440/220	110	15	24
Coalmont Collieries, Limited	Coalmont	Steam		3	60	550	550	110		12
Canadian Western Lumber Co., Ltd.	Fraser Mills	Steam		3	60	480	440	110/220	35	
Hedley Gold Mining Company, Ltd.	Hedley	Water		3	60	6,600	2,200	110		
Corporation of Kamloops	Kamloops	Steam & Water		3 & 1	60	2,200	110/220	110	78	1,439
Corporation of City of Merritt	Merritt	Steam		3 & 1	60	2,300			2	325
Mission Public Service Co., Ltd.	Mission City	Purchased								54
Electric Light Department	New Westminster	Purchased		1	60	2,300		110/220		3,955
Pacific Mills, Limited	Ocean Falls	Water		1 & 3	60	2,200/440	2,200/440	110	4	2
Powell River Company, Limited	Powell River	Water		3	50	600	600	600/2,200	25	16
Princeton Coal & Land Company	Princeton	Purchased		3	60		2,200	110	3	164
Corporation of City of Prince George	Prince George	Oil		3 & 1	60	2,300	2,300	110	6	503
Corporation of City of Prince Rupert	Prince Rupert	Water		3	60	4,400	440/220	110	96	1,434
Smithers Electric, Ltd.	Smithers	Purchased								100
The Spencer's Bridge Light and Pr. Co., Ltd.	Spencer's Bridge	Water		3 & 1	60	2,300	115	115		
The Surf Inlet Power Company, Ltd.	Surf Inlet	Water		3	60	440	440	110	2	
Whalen Pulp & Paper Mills, Ltd.	Swanson Bay	Water		3	60	550	550	110/220		
B.C. Electric Railway Co., Limited	Vancouver			3 & 1	60	2,200	220/2,200	110	2,235	52,385
B.C. Electric Railway Co., Limited leased by Vancouver Power Company	Vancouver	Steam		3	60	2,200				
Western Power Company of Canada, Ltd.	Vancouver	Water		3 & 1	60	4,400	2,200/220	110	200	1,800
Vancouver Power Company	Vancouver	Water		3	60	2,200				
Pacific Great Eastern Railway Co.	Vancouver	Water		3 & 1	60	4,200	220	110	2	
Whalen Pulp & Paper Mills, Ltd.	Woodfibre			D.C.		125	125	110		
Victoria—										
Corporation of city of Alberni	Alberni	Oil		1	60			110		125
Corporation of city of Courtenay	Courtenay	Purchased		3 & 1	25		220/110	110	42	328
Cumberland Elec. Lighting Co., Ltd.	Cumberland	Purchased		3 & 1	25		110/220	110	9	655
Corporation of Duncan	Duncan	Oil		1 & 3	60	2,200	220/110	110	5	335
Canadian Explosives, Limited	James Island	Purchased		3 & 1	60		220	110		56
Corporation of city of Ladysmith	Ladysmith	Steam		3 & 1	60	2,200		110		500
Nanaimo Elec. Lt., Pr. & Heating Co., Ltd.	Nanaimo	Water & Steam		3	60	2,300	220/110	110	28	2,227

APPENDIX L—Concluded.

List of Electric Light and Power Companies Registered under the Provisions of the Electricity Inspection Act, during Fiscal Year ended March 31, 1922

District and Company	Address	Prime Mover		Phases of System	Frequency of System	Generator Voltage	Service Voltages		Number of Meters	
		Type	Horse Power				Power	Lighting	Power	Lighting
Victoria—Concluded										
Corporation of city of Port Alberni	Port Alberni	Oil		3 & 1	60	2,200		110		250
Whalen Pulp & Paper Mills, Limited	Port Alice	Steam		3	60	2,200	2,200/440	220/110		
Royston Light & Power Co., Ltd.	Royston	Purchased		3 & 1	25	13,200	110/220		1	10
B.C. Electric Railway Company, Ltd.	Victoria	Purchased		3	60	2,200	220/440/2200	110	451	15,357
Vancouver Island Power Company Ltd. (Jordan Rivers)	Victoria	Water		3	60	2,200	60,000			
Vancouver Island Power Co., Ltd. (Brentword Bay)	Victoria	Steam		3	60	2,200	60,000			
B.C. Cement Co., Ltd. (Bamberton Plant)	Victoria	Purchased		1	60			110		
B.C. Cement Co., Ltd. (Tod Inlet Plant)	Victoria	Purchased		1	60			110		
J. A. Sayward	Victoria	Purchased						110		9
Victoria Electric Company, Ltd	Victoria	Purchased						110		24
Pemberton & Son	Victoria	Purchased								1
Canadian Collieries (Dunsmuir), Ltd.	Victoria	Water		3 & 1	25	13,200	2,200/440	110	2	167
Uplands, Limited	Victoria	Purchased		1	60		220/110	110	5	15
Minto Electric Lt., Ht. & Pr. Co'y, Ltd.	Cumberland	Purchased		1	25		110	110		22
Comox Logging & Railway Co	Headquarters	Purchased		1-3	25		220	110	1	19

DOMINION OF CANADA

REPORT

OF THE

COMMISSIONER OF PATENTS

FOR THE

Fiscal Year ending March 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 9—1923]

To His Excellency, General, the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

The undersigned has the honour to present to Your Excellency the report of the Commissioner of Patents for the fiscal year ended March 31, 1922.

All of which is respectfully submitted.

JAMES A. ROBB,
Minister of Trade and Commerce.

OTTAWA, July 20, 1922.

ANNUAL REPORT

OF THE

COMMISSIONER OF PATENTS

The Honourable James A. Robb, M.P.,
Minister of Trade and Commerce.

Sir,—In pursuance of the requirements of the 63rd section of the Patent Act, chapter 69, R.S.C., 1906, and section 5A of an Act respecting the Patent Act, the Copyright Act, the Trade Mark and Design Act, and the Timber Marking Act, chapter 64, 9 and 10, George 5, I have the honour to report as follows upon the proceedings in the fiscal year ending March 31, 1922, under the provisions of these Acts.

Proceedings Under Peace Provisions

Provision was made by the Treaties of Peace for extending the time for the fulfilment of any action which should have been effected during the period of the war. The Treaty of Peace (Germany) Order, 1920, and the Treaties of Peace (Austria and Bulgaria) Order, 1921, gave effect to these provisions in Canada. Under the powers conferred by these Orders and under an Act to amend the Patent Act, chapter 44, 11-12 George 5, the renewal fees on 260 patents were accepted and the patents revived. Extension of time to import and manufacture was granted on 71 and 73 patents respectively. There was also a large number of applications accepted for which the time for filing had expired under section 8 of the Patent Act.

General Business

The general business of the office for the year ended March 31, 1922, showed a slight decrease as compared with the preceding year. This was for the most part due to the expiration of the period giving relief by special legislation for those inventors, patentees and proprietors who owing to causes arising from the war had lost or had failed to acquire their rights under the Patent Act.

The number of applications for patents filed was 12,274. This is 1,172 less than last year, or a decrease of 8 per cent. There were 7,393 patents issued. This is a decrease of 3,759, or over 33 per cent less than last year. This large diminution resulted in the change in the manner of payment of fees under an Act amending the Patent Act assented to June 4, 1921. By this amendment applicants were given six months from the date of the notice of allowance of the application in which to remit the final fee. So many took advantage of this privilege to withhold the fee until the last moment that the issue was temporarily reduced. Since the expiration of the first six months under the new Act the number of patents issued has increased and during the next year should make up for the apparent decrease in this year. Certificates for renewal fees totalled 2,620, an increase of 71, or about 3 per cent over the previous year. Four hundred and eighty-seven of these renewals were received under the Patent Act, chapter 69, R.S.C., 1906, and 2,133 were received as final fees under the amendment to the Patent Act (11-12 George 5, chapter 44). The number of assignments recorded was 5,481, a decrease of 44, or less than one per cent.

Patents placed under the benefit of the provisions of section 44 of the Patent Act numbered 2,410. This is a decrease of nearly 36 per cent, or a total of 1,347 less than during the preceeding twelve months. Of the total number granted fees were paid on 1,717 under the Order in Council of June 18, 1921. There were 6,935 reports on applications issued by examiners. This exceeds last year by 115, or about 2 per cent. The applications for, and the issue of caveats increased slightly. Applications for 519 caveats were filed and 420 caveats were issued. This is an increment of 51 and 10, or 10 per cent and 2 per cent respectively. Notices under section 8 of the Patent Act were practically the same as last year. They were 381 in number, or three more than in 1921. The total number of transactions relating to patents was 38,577, a decrease of 5,928, or over 13 per cent less than last year.

Registrations of Copyright numbered 1,465. This is 264 less than last year, a decrease of 15 per cent. Trade-mark registrations totalled 2,488, an increment of 360, or nearly 17 per cent. There were 369 Industrial Designs recorded, an increase of 53, or 16 per cent. Timber Marks registrations declined to 20, a decrease of 38, or about 65 per cent. The number of assignments of Copyright, Trade-marks, Designs and Timber Marks amounted to 570, a decrease of 54, or 8 per cent. The total registrations affecting Copyrights, Trade-marks, Industrial Designs and Timber Marks were 5,048, a gain of 193, or about 4 per cent greater than last year.

A statement of the particulars of the transactions of the Patent and Copyright Office is given in appendix A, and a comparative statement for the last ten years is given in appendix B.

Receipts and Expenditure

The receipt of fees from all sources exceeded any previous year, notwithstanding the lowering of the fee and the decrease in the number of applications filed. The increase was due for the most part to the change in the system of paying a filing and an issue fee instead of a filing fee and renewals. About $11,000 of the increase came from the new fees collected for filing petitions for license, importation and manufacture. The total net receipts were $454,886.24, an increase of $46,999.51 over the net amount received in 1921. The expenditure was $202,193.39, and the surplus of receipts over expenditure was $252,692.85. The receipts from Patent fees was $380,206.90, a gain of $35,494.67 over the preceding year. From the Copyright and Trade-mark Branch of the office the fees were $74,679.34, an increase of $11,504.84.

A statement of the receipts and expenditure is given in appendix C, and detailed monthly statements of fees from the Patent Branch and the Copyright and Trade-mark Branch are given in appendices D and E respectively.

Residence of Inventors for Patents Granted

The country of residence of inventors for patents issued is given in appendix F. Of the total number granted 4,929 were applied for by residents of the United States of America. This is nearly 67 per cent of the whole issue but is a 2 per cent decrease from last year. Inventors resident in Canada contributed 1,199, or 16 per cent, an increment of 1 per cent. Residents of Great Britain, its colonies and possessions applied for 838, or over 11 per cent of the total. This is also an increase of over 3 per cent. The remaining 427, or over 5 per cent, came from inventors in twenty-seven other countries.

Exchange of Publications

The office received during the year, in exchange for the *Patent Office Record*, the official publications and reports of patents, trade-marks, and designs from Great

Britain, Australia, New Zealand, France, the United States, Italy, Switzerland and Japan. The office also received at intervals as published the abridgements of patents and bound volumes of patents of Great Britain, the printed copies of French patents, and the current weekly issue of United States patents.

In addition about sixty scientific and technical periodicals for the use of the examining corps were subscribed for or exchanged for the *Record*.

Staff

The number of employees of the office averaged 111 during the year, consisting of 90 permanent and 21 temporary officers and clerks. During the twelve months one examiner of patents resigned and one retired on superannuation. One clerk was superannuated and two resigned. The position of chief examiner of patents was created. All additional appointments were made to the clerical staff and were filled by temporary employees.

The additions to the staff were for the most part necessary on account of the increased work caused by the amendment to the Patent Act. By this amendment the receipt of fees in two installments and the taxing of petitions under sections 39, 40 and 44 of the Patent Act resulted in an increase issue of receipts and book-keeping in the accounting division. The preparation and mailing of notices of allowance and the resulting noting and filing of applications added to the work of the correspondence, records and examiners' clerks divisions.

Trend of Invention

There were few outstanding features in the field of invention. The subject of locomotion maintained its pre-eminence. The land vehicle class was again the largest single class of invention and internal combustion engines was the next largest. Both these classes showed substantial gains in the number of applications filed therein. Applications relating to aeronautics declined. In railways, rolling stock and draft appliances there were slight decreases, but there was an increase in the number for railway brakes. There were fewer applications for ships but an increased number for small boats and ships' davits.

Small arms, ammunition, ordnance and other classes of inventions relating to warfare were very inactive.

Some classes of metal working such as grinding, founding, tool-making and turning increased. In metal founding there were numerous inventions for centrifugal casting machines and devices for handling moulders' sand. In the general class of metal-working apparatus the number of applications for machines combining a plurality of operations and devices for assembling machine parts, such as valve spring appliers and removers, increased.

In agricultural machinery there were decreases in the applications for ploughs, harrows, harvesters and grain separators.

The electrical classes as a whole were active. Applications for high-tension insulators, thermal cutouts and electric heaters showed substantial gains. There has also been continued progress in automatic and semi-automatic telephone exchanges and in the development of wireless communication.

In apparel and dress fastenings there have been notable gains in soft collars and cuffs and in separable fasteners.

The treatment of textile fibres and their manufacture into thread and cloth has decreased.

The interest in vehicle signals both mechanically and electrically operated has been well maintained.

Machines for use in glass blowing and moulding increased nearly fifty per cent.

Other arts which had substantial gains were printing, advertising devices, paper manufactures, oil distillation, food products and confectionery, dyes, book binders, plastics and rubber treatment, boots and shoes, and furniture.

In many classes of invention there were slight decreases. In the classes containing tire valves, pulp and paper treating processes and machines, electric railway signalling systems, typewriters, metal cans and boxes, metallurgical and electrochemical processes, fences and gates, hoisting and loading means, and water controlling and distributing apparatus, there was a marked falling off.

New Legislation and Orders in Council

During the year two new Acts were passed by Parliament, viz., an Act to amend the Patent Act (11-12 George 5, chapter 44), and an Act to amend and consolidate the Law relating to Copyright (11-12 George 5, chapter 24). Both Acts were assented to June 4, 1921.

The first of these Acts provided for extension of time for filing applications for patent, and for importation and manufacture, and gave the Commissioner of Patents powers to carry out the provisions respecting industrial property under the Treaties of Peace as defined in the Peace Treaties Orders in Council. It also changed the fee for a patent and the manner of payment from a fee of sixty dollars payable in three terms of six years each to a fee of thirty-five dollars payable fifteen dollars on the filing of the application and twenty dollars on the issue of the patent. This has resulted in an increased revenue to the office notwithstanding that the cost to the patentee has been reduced over forty per cent.

The second Act is to come into force on a day to be fixed by proclamation of the Governor in Council, but such proclamation has not yet been issued. This Act affords most complete copyright protection throughout Canada to literary, dramatic, musical and artistic works, including dramatization of non-dramatic literary works, the making of phonographic records, pianola rolls of musical works, and moving picture films of artistic works, and will enable Canadians to obtain similar protection for their works throughout the civilized countries of the world.

An Order in Council of June 18, 1921, passed under subsection 3 of section 2 of the Act to amend the Patent Act assented to on the 4th of June, 1921, provided for the imposition of a fee of five dollars on filing a petition for an extension of time under sections 39 or 40 of the Patent Act or for the benefit of the provisions of section 44 of the said Act for each patent mentioned in such petition.

Respectfully submitted,

GEORGE F. O'HALLORAN,
Commissioner of Patents.

Ottawa, July 20, 1922.

APPENDICES

APPENDIX A

TRANSACTIONS OF THE PATENT AND COPYRIGHT OFFICE FROM APRIL 1, 1921, TO MARCH 31, 1922

(a) Transactions of the Patent Branch.

Applications for Patents		12,274
Patents granted—		
Under Chapter 69, R.S.C., 1906.		
Fees paid for 6 years on issue	2,221	
Fees paid for 12 years on issue	1	
Fees paid for 18 years on issue	3	
Under Chapter 44, 11-12 George V.		
Fees paid for 18 years on issue	5,148	
Re-issues granted—		
Under Chapter 69, R.S.C., 1906.		
For 6 years	5	
For 12 years	2	
Under Chapter 44, 11-12 George V.		
For 6 years	4	
For 18 years	9	
Total		7,393
Certificates for renewal fees after issue—		
Under Chapter 69, R.S.C., 1906.		
For 6 years	459	
For 12 years	28	
Under Chapter 44, 11-12 George V.		
For 6 years	247	
For 12 years	13	
For 18 years (as final fees)	1,873	
Total		2,620
Reports by Examiners in addition to patents granted		6,935
Assignments of Patents		5,481
Patents placed under section 44		2,410
Importation extensions		71
Manufacture extensions		73
Notices under section 8		381
Caveats—		
Applications		519
Grants		420
Total transactions		38,577

(b) Transactions of the Copyright and Trade-mark Branch.

1. Copyrights—		
Full Copyrights without certificates	1,139	
Full Copyrights with certificates	191	
Temporary Copyrights without certificates	41	
Temporary Copyrights with certificates	19	
Interim Copyrights without certificates	41	
Interim Copyrights with certificates	34	
Renewals of Copyrights	....	
Assignments of Copyrights	35	
Total		1,500

2. Trade Marks	2,488	
Renewals of Specific Trade Marks	121	
Assignments of Trade Marks	485	
Total		3,094
3. Industrial Designs	369	
Renewals of Industrial Designs	15	
Assignments of Industrial Designs	44	
Total		428
4. Timber Marks	20	
Assignments of Timber Marks	6	
Total		26
Total registrations		5,048

APPENDIX B

COMPARATIVE STATEMENT of the transactions of the Patent and Copyright Office from 1912 to 1922, inclusive.

(*a*) Comparative Statement of the Patent Branch.

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Applications for Patents	8,681	8,359	7,302	7,793	8,751	8,683	9,025	11,198	13,446	12,274
Patents granted	7,502	7,918	6,867	6,812	7,520	7,233	6,052	9,527	11,152	7,393
Certificates for renewal fees	1,199	1,323	1,211	1,419	1,599	1,847	2,022	2,036	2,549	2,620
Caveats granted	353	354	391	419	358	364	349	408	410	420
Assignments	3,741	3,432	3,301	3,311	3,661	3,425	3,690	4,479	5,525	5,481
Fees received, net	$218,125 02	$215,001 71	$190,028 37	$202,630 40	$227,094 09	$228,278 57	$239,345 38	$294,046 28	$344,712 23	$380,206 90

(*b*) Comparative Statement of the Copyright and Trade Mark Branch.

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Copyrights registered	1,760	1,835	1,675	1,477	1,384	1,440	1,436	2,028	1,729	1,465
Certificates of copyright	205	207	193	146	160	128	142	201	174	244
Trade Marks Registered	1,315	1,378	1,106	1,019	840	987	919	1,735	2,128	2,609
Industrial Designs Registered	228	165	224	215	196	177	169	186	316	384
Timber Marks Registered	15	57	24	27	55	31	90	22	58	20
Assignments Registered	559	264	242	279	333	234	255	320	624	570
Fees received, net	$43,061 56	$41,251 98	$32,840 87	$29,645 11	$28,642 81	$32,265 28	$40,178 82	$60,450 69	$63,174 50	$74,679 34

APPENDIX C

RECEIPTS AND EXPENDITURES FOR 1921-22

RECEIPTS		EXPENDITURES	
Cash received	$480,378 81	Salaries	$150,649 74
Cash refunded	25,492 57	Patent Record	22,593 82
		Contingencies	28,949 83
			$202,193 39
		Receipts over expenditures	252,692 85
Net cash	$454,886 24		$454,886 24

APPENDIX D

DETAILED STATEMENT Patent Office Fees for Year 1921-22.

Month	Notices	Patents	Assignments	Certified Copies	Caveats	Sundries	Subscriptions	Section 44	Import	Manufacture	Totals
1921	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
April	70 00	25,370 43	912 75	490 10	266 20	22 25	47 25				27,178 98
May	66 00	24,578 38	919 50	522 35	175 00	35 00	75 05				26,371 28
June	74 00	24,626 40	1,019 75	570 30	184 00	78 47	30 43				26,583 35
July	68 00	25,371 45	764 35	376 20	197 25	25 00	28 50				26,830 75
August	50 00	28,974 00	999 90	398 05	225 15	63 25	46 10	752 10	75 00	10 00	31,593 55
September	52 00	26,359 13	860 50	457 35	180 00	30 00	119 50	1,155 00	105 00	45 00	29,363 48
October	78 00	24,974 56	873 50	450 15	215 20	88 68	35 25	1,155 00	181 00	160 00	28,211 34
November	62 00	33,226 74	1,102 70	508 50	145 75	86 20	33 10	1,000 00	160 00	96 00	36,420 99
December	56 00	47,254 72	1,568 60	419 30	190 15	55 00	955 00	1,078 00	185 00	270 00	52,031 77
1922											
January	83 00	32,205 49	1,046 75	507 80	226 00	42 50	219 19	986 00	490 00	301 00	36,107 73
February	52 00	30,243 88	854 40	537 40	220 00	121 00	62 25	1,038 20	180 00	235 00	33,544 13
March	66 00	36,904 92	1,046 50	527 45	300 15	103 25	73 05	1,377 00	262 00	250 00	40,910 32
Totals	777 00	360,090 10	11,969 20	5,746 95	2,524 85	750 60	1,724 67	8,541 30	1,638 00	1,367 00	395,147 67
Refunds	15 00	13,760 57	132 85	290 15	57 20	282 80	44 20	198 00	55 00	105 00	14,940 77
Totals	762 00	346,329 53	11,836 35	5,474 80	2,467 65	467 80	1,680 47	8,343 30	1,583 00	1,262 00	380,206 90

APPENDIX E

DETAILED STATEMENT Trademark and Copyright Fees, 1921-1922.

Month	Trade-marks	Copy-rights	Designs.	Timber-marks	Assign-ments	Certified Copies	Totals
1921	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
April	6,664 55	171 50	211 00	8 50	89 17	99 95	7,244 67
May	7,228 20	199 65	99 00	7 00	52 15	34 50	7,620 50
June	5,890 65	124 00	137 00	15 00	87 50	49 25	6,303 40
July	5,300 35	147 00	167 00	2 00	41 00	16 25	5,673 60
August	6,934 25	136 77	170 00	6 00	48 00	16 00	7,311 02
September	4,835 40	131 50	201 50	2 00	44 00	28 75	5,243 15
October	6,179 00	185 00	298 00	2 00	45 00	24 25	6,733 25
November	6,810 17	170 00	174 00	.....	62 00	31 25	7,247 42
December	7,685 75	165 15	192 00	6 00	88 00	57 25	8,194 15
1922							
January	7,545 43	133 90	167 25	2 00	91 00	55 50	7,995 08
February	5,640 07	132 15	222 50	2 00	82 00	29 35	6,108 07
March	8,730 33	191 00	517 00	6 00	69 00	43 50	9,556 83
Totals	79,444 15	1,887 62	2,556 25	58 50	798 82	485 80	85,231 14
Refunds	10,051 45	45 90	431 00	.....	2 00	21 45	10,551 80
Totals	69,392 70	1,841 72	2,125 25	58 50	796 00	464 35	74,679 34

APPENDIX F

Residence of Inventors for Patents Granted in 1921-22

Canada—		
Ontario	508	
Quebec	276	
British Columbia	103	
Saskatchewan	101	
Alberta	96	
Manitoba	75	
Nova Scotia	22	
New Brunswick	14	
Prince Edward Island	4	
Total		1,199
Great Britain and Ireland—		
England	633	
Scotland	49	
Ireland	14	
Wales	10	
Channel Islands	1	
Total		707
British Colonies and Possessions—		
Australia	65	
New Zealand	48	
Transvaal	6	
South Africa	4	
Egypt	4	
India	2	
Newfoundland	1	
British Guiana	1	
Total		131
Foreign States—		
America—		
United States	4,929	
Cuba	5	
Argentine Republic	4	
Mexico	3	
Philippine Islands	3	
Chili	3	
Porto Rico	2	
Dominican Republic	2	
Panama	1	
Total		4,952
Europe—		
Germany	97	
France	92	
Sweden	53	
Norway	35	
Switzerland	30	
Italy	29	
Holland	20	
Denmark	12	
Belgium	11	
Austria	7	
Spain	3	
Finland	2	
Luxemburg	2	
Czecho Slovakia	1	
Total		394
Africa—		
Algeria	1	
Portuguese East Africa	1	
Total		2
Asia—		
Japan	8	
Total		8
Grand total		7,393

CANADA
DOMINION BUREAU OF STATISTICS

ANNUAL REPORT

OF THE

DOMINION STATISTICIAN

FOR THE

FISCAL YEAR ENDED MARCH 31

1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1923

LETTER OF TRANSMITTAL

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

May it Please Your Excellency:

I have the honour to submit herewith, for the information of Your Excellency and the Parliament of Canada, the Annual Report of the Dominion Statistician, under Section 4 of the Statistics Act, 1918 (8-9 Geo. V, Chap. 43), for the year ended March 31, 1922.

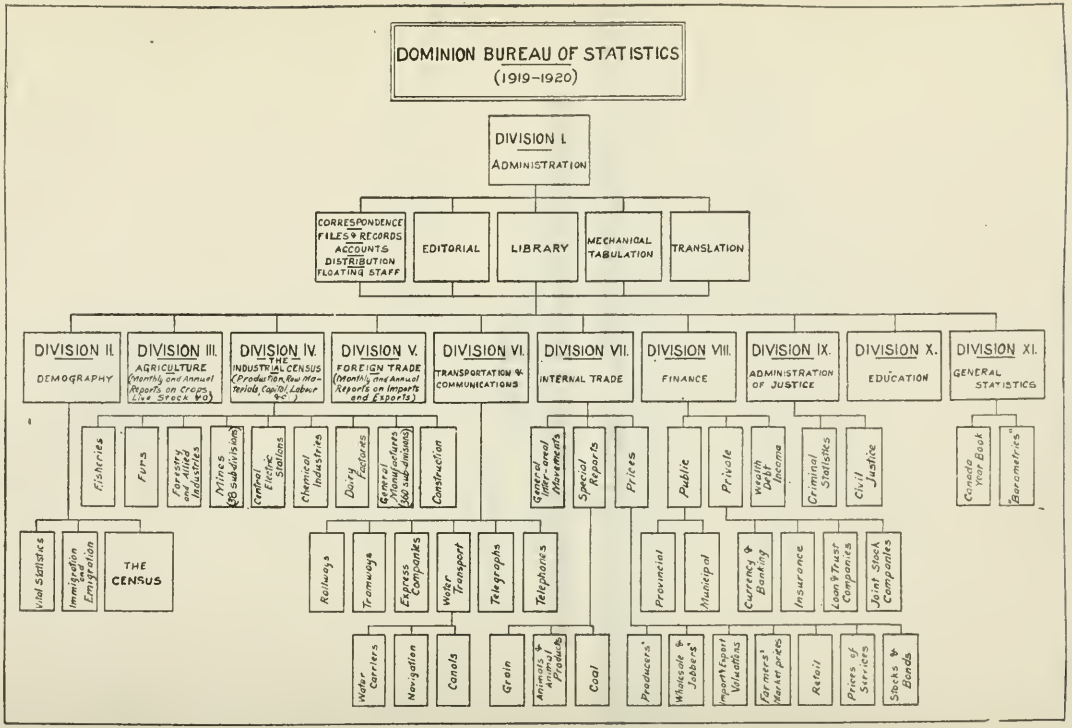
I have the honour to be,

Your Excellency's most obedient servant,

JAMES A. ROBB,
Minister of Trade and Commerce.

Department of Trade and Commerce,
Ottawa, February 1, 1923.

DIAGRAM SHOWING ORGANIZATION OF THE DOMINION BUREAU OF STATISTICS, CANADA


DOMINION BUREAU OF STATISTICS
(1919–1920)
DIVISION I.
ADMINISTRATION
CORRESPONDENCE FILES & RECORDS ACCOUNTS DISTRIBUTION FLOATING STAFF
EDITORIAL
LIBRARY
MECHANICAL TABULATION
TRANSLATION
DIVISION II.
DEMOGRAPHY
DIVISION III.
AGRICULTURE
(Monthly and Annual Reports on Crops, Live Stock &c)
DIVISION IV.
THE INDUSTRIAL CENSUS
(Production, Raw Materials, Capital, Labour &c)
DIVISION V.
FOREIGN TRADE
(Monthly and Annual Reports on Imports and Exports)
DIVISION VI.
TRANSPORTATION & COMMUNICATIONS
DIVISION VII.
INTERNAL TRADE
DIVISION VIII.
FINANCE
DIVISION IX.
ADMINISTRATION OF JUSTICE
DIVISION X.
EDUCATION
DIVISION XI.
GENERAL STATISTICS
Fisheries
Furs
Forestry and Allied Industries
Mines (28 subdivisions)
Central Electric Stations
Chemical Industries
Dairy Factories
General Manufactures (80 sub-divisions)
Construction
General Inter-areal Movements
Special Reports
Prices
Public
Private
Wealth Debt Income
Criminal Statistics
Civil Justice
Canada Year Book
Barometrics
Vital Statistics
Immigration and Emigration
THE CENSUS
Railways
Tramways
Express Companies
Water Transport
Telegraphs
Telephones
Provincial
Municipal
Currency & Banking
Insurance
Loan & Trust Companies
Joint Stock Companies
Water Carriers
Navigation
Canals
Grain
Animals & animal products
Coal
Producers'
Wholesale & Jobbers'
Department Valuations
Farmers' Marketings
Retail
Prices of Services
Stocks & Bonds

REPORT

OF THE

DOMINION STATISTICIAN

FOR THE

FISCAL YEAR ENDED MARCH 31, 1922

Ottawa, February 1, 1923.

The Honourable James A. Robb, M.P.,
Minister of Trade and Commerce,
Ottawa, Canada.

Sir,—Under section 4 of the "Act respecting the Dominion Bureau of Statistics", (8-9 George V, chapter 43), I have the honour to report as hereinafter for the fiscal year 1921-22.

The report is in two main parts. In the first a general review is given of the present organization of the Bureau and of the stage now reached in the development of statistical policy in Canada—with special reference to the line of future development. The second part contains an outline of the work carried out in the different branches of the Bureau during the period under review as reported by the chiefs in immediate charge.

I. ORGANIZATION OF THE DOMINION BUREAU OF STATISTICS —STAGE NOW REACHED IN THE DEVELOPMENT OF STATISTICAL POLICY IN CANADA—THE LINE OF FUTURE DEVELOPMENT

The Dominion Bureau of Statistics was set up by statute in 1918 as a central statistical department for Canada (8-9 Geo. V., c. 43, "An Act respecting the Dominion Bureau of Statistics"). The Act was a consolidation of all previous statistical legislation (Census Act, General Statistics Act, Railway Statistics Act, etc.) with important additions.

The Act was based on the report of a Commission on Statistics of seven members, appointed in 1912, which after detailed investigation, criticized severely the omissions, inequalities, inaccuracies, overlapping and lack of coherence and common purpose in Canadian official statistics, and recommended (*a*) a series of specific reforms and enlargements, and (*b*) a policy of statistical co-ordination for the Dominion under central direction.*

* The report of the commission ran to seventy-two pages of descriptive comment and recommendations. Other public bodies had drawn equally pointed attention to the deficiencies of Canadian statistics. These statistics had previously consisted of reports brought out independently by different departments on subjects within their respective interests. The British North America Act had assigned "statistics" to the Dominion Government, implying that statistics are a national concern and that it is the duty of the Federal Government, while not precluding provincial statistics, to organize the field from a national standpoint. Previously to 1916 that duty had not been undertaken, though the creation of a permanent Census Office in 1905 was an important step forward. For a brief account of Dominion and provincial statistical activities from the earliest times up to 1912, see "First Annual Report of the Dominion Statistician, 1919," pp. 9-14, which sums up as follows: "A considerable but desultory body of statistics had grown into existence; in certain sections good work was being done—in others not good. There were many duplications, and at the same time numerous gaps at crucial points; finally there was a total lack of general plan. The embarrassment which this caused with the growth of the country and the increasing complexity of its problems will be appreciated."

In 1915, following this report, the office of Dominion Statistician was created, and the next two years were devoted to the drafting in detail of the various plans involved, which included a definitive monograph on each important field of statistics and covered the statistical work of all the departments. A memorandum entitled "A National System of Statistics for Canada" was printed for the Cabinet prior to the final adoption of these plans. Subsequently the Bureau was created in 1918.

Creation of the Bureau.

The Bureau has been constituted by the transfer of the following work and branches: (1) The Census and Statistics Office (covering the census of population and the statistics of agriculture, general manufactures and criminal justice); (2) Fisheries Statistics; (3) Mining Statistics; (4) Forestry Statistics; (5) Dairying and Fruit Statistics; (6) Water and Electric Power Statistics; (7) the Railways and Canals Statistical Branch (railways, express, telegraphs, telephones, canals); (8) External Trade Statistics (exports and imports); (9) Grain Trade Statistics; (10) Live Stock Statistics; and (11) Employment and Prices Statistics. In addition four new branches were erected, dealing respectively with Public Finance, Internal Trade, Vital Statistics and Education. Subsequently the statistical activities of the Fuel Controller and of the Board of Commerce were absorbed. Modifications of the Bankruptcy, Public Health and Railway Acts and of the regulation on franking privileges were also made.

Working Constitution of the Bureau.

The Act makes the Bureau responsible for the statistics "relative to the commercial, industrial, social, economic and general activities and conditions of the people"—a universal mandate. Certain statistics, however, originate as by-products in particular departments, or can best be collected through the field staffs or other machinery of such departments. These should not only meet the requirements of the departments in question, but should constitute an integral part of the general system. The Act accordingly assigns the Bureau the further task of "collaborating with all other departments of the Government in the compilation and publication of statistical records of administration." The machinery for this collaboration is provided by a regulation dated October 12, 1918, which gives the Dominion Statistician direct access to heads of department for conference purposes, with an instruction after such conference to prepare a recommendation for submission to Council, such recommendation on approval to constitute a permanent arrangement governing the particular subject dealt with. A further regulation provides for central machine compilation as an adjunct to the system. In this way the Bureau is constituted a comprehensive central statistical office, working for the most part under the Governor in Council, all purely statistical work having been brought by transfer under its immediate direction, whilst remaining departmental statistics are indirectly made part of the system. Delimitation is also achieved between the two classes of department which have legal inquisitional powers, namely, executive departments having administrative functions in specific fields, and the statistical department which collects data for informative purposes only.

The linking up of provincial departments (which under the British North America Act, cover some most important statistical subjects) is secured through a clause permitting provincial officers to serve as agents under the Statistics Act. A further clause gives the Bureau right of access to all provincial, municipal or corporation records.

Purpose of Statistical Centralization.

The purpose of statistical centralization includes, of course, the numerous economies in overhead which concentration promotes, as in staff, equipment, elimination of duplication, etc. For example, two pronounced characteristics of statistical work are (*a*) the large proportion of routine, and (*b*) its ebb and flow; a "floating" staff is accordingly a feature of a central bureau. The use of electrical tabulating machinery, again, has revolutionized statistical work, but it effects an economy only on large-scale (i.e., centralized) operations. (The Bureau has an investment of over $125,000 in machinery.) Central library, record and administration systems are further examples. Still another economy, from a different angle, flows from the concentration of statistical experience as a result of bringing the higher statistical officers of the Government into constant contact with each other. Finally the regulation above quoted provides a means for continuous unbiassed review of departmental statistical activities.

The convenience of the public is also promoted by the centralization of statistical inquiries. On the one hand the number of questionnaires is reduced by each being made to serve the purposes of several departments simultaneously, and on the other a general information agency is provided to which the public may apply for all resulting data on the production, trade, population, and other phases of progress in the country.

But the fundamental purpose of statistical centralization lies in the fact that its great subjects, such as production, trade, finance, population, etc., are not separate and distinct, but are closely inter-related. The State, in other words, is not a series of heterogeneous activities, but is itself an entity. The statistics of the country, therefore, must be framed to illustrate these relationships. If, however, the statistics of mines, fisheries, manufactures, and other phases of production are carried out in a series of water-tight compartments, the phenomena common to all, such as labour, capital, equipment, etc., will inevitably be handled differently, with non-comparable results. Again, if one system of classifying commodities is employed by the trade statistician, another by the production statistician, and another by the prices statistician, no general study of conditions surrounding a particular group of commodities can be made; similarly, the classification of occupations should be uniform, whether in the census analysis of population, in the vital statistical record of deaths, in criminal statistics, in labour statistics, and so on. Again, on points of method like the construction of index numbers—clearly such devices should yield results that are comparable from field to field. In brief, a true national statistic is not a mere aggregation of the statistics of different activities, but involves also a purview of the totality of phenomena with the object of revealing their interplay and, if possible, the controlling forces from time to time. Not only should the State be provided with statistics on all subjects of truly national interest (which will not be the case unless the duty of ensuring it is definitely undertaken), but these statistics should be properly " articulated " with each other, so as to form in so far as possible, a single conspectus.

Statistics is an art or method which must serve various interests and departments; but it must also be conceived and approached from the governmental standpoint as a science which has for subject the corporate progress of the nation.

Progress under the Bureau to Date

The Bureau has completed the plans for a unified, nation-wide statistical system, covering the most important phases of social and economic activity, and has carried them out to a considerable degree, though part is not yet realized. The First Annual Report of the Dominion Statistician contained a full description of the subject-matter of these plans and of the preliminary organization of the

Bureau. The chart appearing as frontispiece is from that report, and shows the eleven main branches under which the work is conducted; a list of the publications of the Bureau is also attached (see appendix) as further indicating the scope and character of the work.

In briefest form, the chief reorganizations effected to date are as follows:

(1) The Census (decennial and quinquennial) has been reorganized as a stocktaking of the people and of their basic industry, and its true place as such in the national statistical system and in relation to other fields of statistics determined; it has been considerably simplified as a result of the Bureau's widened control of allied statistics.

(2) A national scheme of vital statistics has been established by inducing the provinces (*a*) to enact uniform legislation drafted by the Bureau; (*b*) to adopt uniform administration of the same; (*c*) to use standard forms issued by the Bureau, and *(d)* to supply transcripts of the original returns.

(3) The monthly and annual statistics of agriculture have been brought under joint operation of the Bureau and the nine Provincial Governments, to the material improvement of these data and the elimination of much duplication of work and conflicting results. As re-organized, the work includes among other features an annual postal census of acreages under field crops and livestock on farms carried out through rural school teachers; also a complete pooling of data *re* crop conditions, etc., monthly between Dominion and provinces.

(4) The statistics of fisheries, mines, forestry, dairying, central power and general manufactures have been unified and placed on an annual basis (Industrial Census), in co-operation with the several Dominion and provincial departments concerned; altogether the statistical activities of over thirty departments have been brought into harmony. In conjunction with agricultural statistics, this provides comprehensive and up-to-date information on all phases of production—worked out, it may be added, in consultation with some thirty-five trade and industrial associations in different sections of the field. The statistics of industry were previously limited to those of certain Dominion and provincial departments, using widely different methods, covering only part of the field and without comprehensiveness of viewpoint.

(5) The statistics of foreign trade and of transportation and communications have been completely remodelled; in trade statistics a saving of $25,000 a year has been effected, whilst the analytical and interpretative data have been increased and placed on a logical basis.

(6) A branch dealing with the more important aspects of internal trade, including interprovincial trade movements, the marketing of staple commodities (grain, livestock, fruits, etc.), and a complete system of prices statistics, has been established.

(7) Criminal statistics have been reorganized and co-ordinated with the Census and other social statistics.

(8) Substantial beginnings have been made in the treatment of public finance and of education—the latter in collaboration with the nine provincial governments, after an interprovincial conference held in Ottawa, 1920.

(9) Relations between the Bureau and the Department of Labour covering the entire range of labour statistics have been reduced to formal working arrangement and overlapping has been eliminated (1922).

(10) A library of the statistics of all countries has been established, and a central mechanical tabulating service available for all departments has been put in operation.

The main achievement of the Bureau, however, has been in the organization of these several subjects in correlation in accordance with a general plan, and the consequent establishment of a comprehensive survey of the country as a single "going concern." In addition and as a result, there has been created what is frequently called a central "thinking office" in statistics, continuously in touch with general conditions and the line of probable developments.

Organization not yet completed

A statement of the fields in which statistical organization is incomplete is given below. On each of the subjects mentioned a plan of procedure has been drawn up in detail by the Bureau. It may be added that the general problem is essentially one of improved organization; in certain fields savings might be effected that would offset expansion in others.

(1) *Migration.*—The statistics of immigration and emigration are incomplete and out of correlation with the census and vital statistics, the remaining branches of population statistics, with which they should unite to form an entity.

(2) *Navigation.*—Certain improvements in this field are needed to round out the scheme of general transportation statistics and to complete the system of internal trade records above mentioned.

(3) *Imports and Exports.*—Improvement in the compilation of these statistics could probably be effected under section 23 of the Statistics Act.

(4) *Trading Operations.*—The Industrial Census should be made to throw light on general merchandizing operations. Interprovincial arrangements in certain sections should be completed—particularly in forestry and mining statistics.

(5) *Public Finance.*—There is need for further organization of the statistics of public finance, especially in the field of municipal statistics.

(6) *Income.*—The body of data which is being brought together on incomes of the people should be correlated with the data of the Bureau.

(7) *Private Finance.*—The statistics of loan and trust companies require remodelling, and the general scope of the Bureau's researches in connection with the wealth, capital imports, and general financial status of the country should be enlarged.

(8) No statistics of *Civil Justice* exist.

(9) *The Canada Year Book.*—Though the Canada Year Book has been steadily improved during the past five years, it still falls short of the success achieved by the Year Books of certain other countries. The Bureau is now in a position, at little extra cost, to place this publication (which circulates throughout the world as the official compendium of Government data on the resources and development of Canada, and for which the demand is rapidly growing), on a definitely higher level.

(10) *Monthly Review of Canadian Statistics.*—The General Statistics Branch (which issues the Year Book) is now in a position to issue a monthly review of Canadian statistics which would cost little and which, it is believed, would be of marked service to the business community. The object would be to bring together each month the latest "barometric" statistics, in a way that would reveal the current economic trend. Reviews of this kind are issued in

the United States, France, Australia, and other countries. Germany this year is beginning a new monthly review of "Economics and Statistics" that is probably the most ambitious attempt of the kind yet planned. A model has been worked out in the Bureau.

With the above additional organization, the Bureau it is believed would have a scheme of fundamental statistics adequate to the country's needs and capable of adjustment to conditions for a considerable time to come.

Administrative Machinery

The preceding section of this statement has dealt exclusively with problems of subject-matter. The Bureau is also in need of improvements in administrative machinery, for the purpose primarily of increasing its facilities for organization.

(1) More explicit definition of the Bureau, in the terms of its progress to date, as a central statistical organization, bearing the same relation as such to each and every department of the government, would simplify relationships, increase appreciation of its function and add to its forcefulness. Whilst *de facto* the Bureau has been given a free hand, it has suffered by being regarded as a movement by one Department to encroach on others, both Dominion and provincial. It is submitted, however, that it represents the one and only method of attacking a problem otherwise insoluble, and that its function must be regarded as nation-wide if the important object for which it exists is to achieve complete success.

It may be added that the Bureau has an exceptionally complex staff and organization. Its larger branches and subdivisions (most of which were previously major branches of departments) number 14, and it carries out altogether over 50 distinct pieces of work. Its staff this year totals 500; last year it reached 650, and it seldom falls below 300—the whole covering an exceedingly varied field and requiring correspondingly varied qualifications and organization.

(2) It is of interest to note that several countries have established advisory statistical councils as a feature of their statistical organization. European examples are afforded by Austria, Belgium, Holland, etc., and a committee of the kind has been recently set up in Great Britain. In the countries just mentioned the councils consist wholly of Government officials. Another model is that of South Africa whose Census and Statistics Act has the following clause:—

> "There shall be a statistical council consisting of not less than four and not more than eight persons, who shall be appointed by the Governor General and shall hold office during pleasure; and it shall be the function of such council to advise in matters conected with this Act."

The South African Statistical Council consists of representatives of various public interests and has proved a valuable piece of machinery. The United States also has attached an outside advisory council to the Census Bureau, and other instances might be adduced, notably that of the new republic of Czecho-Slovakia, which, under its newly constituted central statistical department, holds an annual national "assembly" of over 60 delegates on statistics. The object is on the one hand to democratize statistics, to meet objections through misunderstanding of the Government's aim, and to increase the practicalness of the work. Good statistical work is peculiarly dependent upon public appreciation and support, yet the *raison d'être* for many individual phases and for co-ordinated organization is peculiarly liable to misconception. A Council aims also to increase the pressure for good organization brought to bear on outlying governmental machinery, and thus to mitigate the dead weight of indifference which

sometimes obtains. The subject is a many-sided one, and materials for the full discussion of the form and function of such Councils are available in the Bureau.

(3) The providing of a permanent, properly planned and protected statistical building is advised.

Conclusion

The final concept in the organization of the Bureau is that of a national laboratory for social and economic research. Statistics are not merely a record of what has been, but are for use in planning what shall be; it is the duty of a statistical bureau to assist directly in the day-to-day problems of administration, as well as to provide their theoretic background. The action of several large universities in establishing research departments, and the endowment of the National Bureau of Economic Research in the United States are suggestive here. One of the most significant of recent developments in administration is the extent to which statistical organization has been increased as a guide to policy. The United States has recently made statistical organization the subject of a special report to Congress by the official Bureau of Efficiency (a report, it may be pointed out, that confirms in its recommendations the line of action taken in Canada). In Germany the Central Statistical Department has been for many years one of the most powerful engines of Government, its organization permeating the country, embracing several subsidiary state bureaus and some forty municipal offices. Italy reorganized statistics as a war measure; Spain has done the same during the present year; most European countries have centralized statistics. The progress already made in Canada has attracted favourable comment both inside and outside the country. Though the usefulness of the Bureau has only begun, in the past three years the applications to it for data by the public have more than trebled. From an organization standpoint the Bureau may be said already to have laid the foundations for a service which under constructive development will permit it to rank with that of any other country of similar institutions and conditions.

II. WORK OF THE BUREAU OF STATISTICS DURING 1921-22 REPORTS BY CHIEFS OF BRANCHES

The work of the Bureau during 1921-22 was as reported below by the chief officers in charge of the respective branches. No change in fundamental organization was made from the preceding year.

Population

The outstanding feature of the year in the work of the Bureau was the decennial census of population and agriculture, which fell to be taken as of date June 1, 1921, and which as now organized represents the general stock-taking of the nation and the background of practically all other branches of statistics. Mr. E. S. Macphail, Chief of the Branch on Demography in the Bureau, reports as follows:—

The Census

The planning of the census of 1921 in full detail was, of course, completed several months prior to the beginning of the fiscal year 1921-22. As elsewhere explained, its scope was considerably altered as compared with the previous census of 1911, largely as a result of the improved organization of subsidiary statistical fields which has been effected by the Bureau during the past five years. In the main the decennial census is now limited to the function of a

stocktaking of the Canadian people and of their basic industry, namely, agriculture. This has permitted some important eliminations. The creation of a national system of vital statistics, for example, has enabled the mortuary census, which was a feature of previous decennial censuses, to be discontinued. Similarly the organization of the statistics of mines, fisheries, forestry and manufactures on an annual basis in co-operation with the Dominion and provincial administrative departments concerned, has resulted in a reduction of forms, the census collecting only lists of operating concerns throughout the country as a basis for the annual investigation. The opening volume of the final census report will contain copies of the various schedules that were used and explanatory matter as to the purpose of each.

The work of the year may be divided under two headings: field-work and compilation. The field-work was extended over the period April to August inclusive, being at its "peak" in June. The Dominion for census purposes is divided into some 230 "districts" corresponding as nearly as possible with the number of constituencies in the Dominion House of Commons. These are in turn subdivided into "subdistricts" or enumeration areas, roughly corresponding with polling divisions. Remote and unorganized districts are covered by special machinery. Each district is under the supervision of a "commissioner" who has charge of enumerators, the latter numbering altogether 11,425.

During the month of May a pamphlet entitled "The Coming Census—Why it is taken—How it is taken" was issued by the Bureau for republication in the press. The pamphlet contained a complete description of the origin, purpose and methods of the census in popular form and was designed to secure the co-operation of the public with the enumerators, a factor so essential to the success of an undertaking of this nature. The moving-picture service of the Department of Trade and Commerce was also effectively employed to the same end.

The commissioners were for the most part appointed and instructed in April and the enumerators in May. April and May were also devoted to the distribution of supplies, of which 720 large boxes containing some 12,000 parcels were sent forward. Notwithstanding the increased volume of the returns resulting from the growth in population, the schedules were received back in somewhat less time than were those of the census of 1911.

The work of revising and correcting the schedules was begun in June, the staff being taken on gradually as the return of the schedules necessitated. Altogether over 24,000 letters were written in connection with the revision of the population schedules, whilst about 150,000 individual farmers were communicated with in the checking of the agricultural returns.

Immediately following the revision and audit of the returns, the coding of the information and its transfer to punch cards was begun. A new code of occupations was prepared. By September some 350 temporary clerks were engaged on this work, and reductions were not begun until the close of the year.

An innovation in the publication of results was adopted, whereby the figures for the various cities, towns, constituencies and provinces were given out to the press subject to revision, as the progress of the work permitted. This not only satisfied local interest in the census, but it assisted in the process of final checking. As the work for each province was finally completed printed bulletins were prepared and given wide distribution. These bulletins were followed by one on the Dominion as a whole, which will in turn be followed by bulletins giving special analyses of the population, as by racial origin, birthplaces, religions, etc., and giving the agricultural returns for each province.

Vital Statistics

The year 1921-22 saw the application of the plan for national vital statistics, first drawn up in 1918, and tentatively put in operation in 1920. The returns for 1920, though not considered final, were compiled and issued in mimeographed form (except for Quebec); summary statements of births, deaths and marriages by provinces were also given to the press at the close of each month as collected. With the progress now achieved it will be possible to issue during the coming year the first general report on Canadian Vital Statistics and to continue the same from year to year thereafter.

Agricultural Statistics Branch

Mr. E. H. Godfrey, in charge of the branch on agricultural statistics, reports as follows:—

Monthly Crop Reports.—The monthly crop reporting service, originated in 1908, has been continued on the same lines as in recent previous years. The subjects of inquiry have comprised stocks of farm products on hand, and the proportions merchantable; fall sown areas winter killed; the progress of spring seeding; preliminary (May 31) and revised (June 30) estimates of the areas sown to field crops; reports on the condition of crops during growth (April 30 to September 30); preliminary, revised, and final estimates of crop yields; records of agricultural values, including land, wages and farm live stock. Monthly observations as to the influence of the weather upon the growth of spring wheat have been continued and published in co-operation with the Dominion Meteorological Service. In co-operation with the Markets Intelligence Division of the Seed Branch of the Department of Agriculture inquiries were conducted through crop correspondents as to the prices of grass and clover seeds; these inquiries have proved exceedingly valuable in connection with its efforts to secure a satisfactory basis of marketing for farmers who grow clover and grass seeds for sale. Special telegraphic crop reports, as in previous years, have been collected and published after the close of the three critical growing months of June, July and August. Arrangements have been made for the cabling of official reports of the Argentine wheat, corn and flaxseed crops, and these are published immediately on receipt. A similar arrangement of mutual character has been made with the Indian Department of Statistics at Calcutta for the Indian and Canadian wheat crops.

Reports to the International Institute of Agriculture.—From the establishment of the Institute in 1910, the Agricultural Branch of this Bureau (Census and Statistics Office prior to 1918) has reported monthly to the International Institute of Agriculture on the principal field crops of Canada, the reports being cabled from Ottawa by the Canadian Commissioner of the Intitute.

Annual Agricultural Statistics.—Annual agricultural returns of field crops and farm live stock were collected in June under co-operative arrangements between the Dominion and Provincial Governments, which have been in force since 1918 for all the nine provinces and since 1917 for the four provinces of Quebec, Saskatchewan, Alberta, and British Columbia. As in previous years, the returns were collected on cardboard schedules from individual farmers through the rural school teachers and children, except in British Columbia, where the returns were obtained direct by mail. The compilation of the returns was effected during the summer with the aid of a special temporary staff, and the estimates based thereon, as finally settled in consultation with the Provincial Governments, were published in summary form on November 22

and in detail in the Monthly Bulletin of Agricultural Statistics for November, 1921.

Monthly Bulletin of Agricultural Statistics.—In addition to the monthly reports of the Bureau's own crop correspondents, the annual statistics of field crops and live stock, the visible supplies of grain, the prices of agricultural produce, and the monthly weather record, various reports and articles on agricultural subjects have been published in the Monthly Bulletin of Agricultural Statistics during the year ended March 31, 1922. The following is a selection of the titles of the more important: Crop Reports of Provincial Governments; Reports of the Dominion Experimental Farms and Stations; Crop Reports from Other Countries; International Institute of Agriculture; Effect of Winter on the Storage of Potatoes (April); Exports of Grain from Canada, 1915-1921 (May); Forecasting of Crops from the Weather, by E. H. Chapman, D.Sc., M.A., (June); Index Numbers of Agricultural Prices, 1909-20 (June, 1921, and March, 1922); Production of Sugar Beet and Beetroot Sugar (July); Production of Flax Fibre (July); Production of Dairy Factories, 1920 (July); Fruit Statistics of Canada, 1920 (August); Fur Farming Industry of Canada, 1920 (September); European Corn Borer Conference, by Arthur Gibson, Dominion Entomologist, Department of Agriculture, Ottawa (October); Egg Production in Canada, 1920 and 1921 (November); The World's Wheat, by Sir James Wilson, K.C.S.I., Annieslea, Crieff, Scotland (December); Preliminary Estimate of the Value of Canadian Field Crops, 1919-21 (December); Cultivation of Fall Wheat in Dry Seasons (December); Acreage under Pasture in Canada, 1918 to 1921 (December); British Imports of Butter and Cheese (December); Agricultural Settlement of Returned Soldiers (December); Quality of Grain Crops, 1912-1921 (January); Canadian Tobacco Crop, 1921 (January); Cost of Wheat Production in Alberta (February); Average Yields Per Acre of Field Crops, 1912-21 (March); Field Crops of Canada Compared as to Quantity and Value, 1920 and 1921 (March). Special articles have been contributed by the Chief of the Division on the following subjects: Collection of Annual Agricultural Statistics (April, May, November); Distribution of the Canadian Wheat and Oat Crops, 1919 and 1920 (April); Values of Field Crops of Canada, 1870 to 1920 (May); Average Grain Yields in Various Countries (June); World's Production of Cereals and Potatoes (December); Agricultural Revenue and Wealth of Canada (March).

Miscellaneous.—The list of crop correspondents has been revised, and many new correspondents have been appointed either in replacement of non-effectives or in obtaining more complete representation. This work is still in process. In addition to the ordinary routine correspondence, a large number of domestic and foreign inquiries by letter have been answered throughout the year.

Industrial Census, 1920

The industrial census, under sections 20 and 21 of the Act, includes the statistics of fisheries, mines, forestry, furs, water-power, and general manufactures. The organization of the field has been carried out by the Bureau in co-operation with the several Dominion and provincial departments which have jurisdiction in the various sections of the field, some thirty in number—the object being to eliminate duplication and to secure uniformity of method and the best agencies for statistical collection and compilation. It was decided to include the hand trades as well as general manufactures in the survey for 1920 in order to render the results comparable with previous decennial census records. The work in this connection was carried out in the following main divisions:—

Fisheries, Fur Farms, Dairy Factories.

Under Miss F. A. Brown, the fisheries statistics of Canada were collected in collaboration with the fisheries departments of the Dominion and of the provinces of Ontario and Quebec, the statistics of fur farms and of the fur trade in general in collaboration with the different provincial game and fisheries departments, and the statistics of dairy factories in collaboration with the Dominion and provincial dairy commissioners and the Bureau of Statistics of Quebec. The reports followed the lines of previous years, but were issued more promptly and with various improvements in detail which permitted of a reduction in printing costs. This division now supervises the statistics of slaughtering and meat-packing establishments, leather, etc.; so that it embraces the entire field of manufactured animal products.

Mining, Metallurgical and Chemical Branch.

Mr. S. J. Cook, chief, reports as follows:

Progress was made in the work of every division of the branch during the twelve months ended March, 1922. The consolidation of mineral statistics; the preparation of special reports on chemicals and allied products; the publication of a revised edition of the Directory of Chemical Industries in Canada; the establishment of a division of iron and steel statistics; and the adoption of a new commodity classification throughout the branch were among the principal items of the year's work. The new classification was put into effect at the close of the year and statistics relating to the production of 1921 were collected under it. The change involved a considerable amount of work in the revision of filing systems and indexes.

A new feature, undertaken in view of the apparently depressed condition of the mining industry, was a special survey of mineral production during the first half of the year, the results of which were issued in August. The report was similar in character to the Preliminary Annual Reports of Mineral Production formerly issued by the Department of Mines, except that only slight reference was made to the non-metals, though complete statistics for coal were obtained. The report was well received as a distinct contribution to the mining literature of the year. It also assisted towards the preparation of the Preliminary Report for the calendar year, which was given out in December and which proved to be close to the final figures available a few months later. The customary Report on the Mineral Production of Canada during the calendar year was also prepared and presented at the meeting of the Canadian Institute of Mining and Metallurgy on March 1, 1922. In addition to these reports, four reports on coal production were published during the year.

Late in 1921 a plan of complete co-operation with the Mines Department of Ontario was perfected, and the reports of mineral production for that year were collected on a co-operative basis, the Bureau printing and distributing the forms and the Ontario Government collecting the returns and forwarding copies to the Bureau. The plan was highly successful, and the minor difficulties encountered will be overcome next year. The provinces of Quebec and British Columbia have been very helpful in their suggestions and in their willingness to supply information collected by them which might be of use to the Bureau. Complete co-operation obtains with the other provinces.

The Directory of Chemical Industries published by the Bureau of Statistics as of date January 1, 1919, met with a cordial reception, the entire edition of 3,000 copies being exhausted within a few weeks. In 1921 the Bureau had approximately 1,000 unfilled requests on hand, to meet which a second edition was prepared. The edition contained a large amount of new material in addition to revisions.

Advantage was taken of the Seventh National Exposition of Chemical Industries, held in New York during the week of September 12-17, 1921, to place before the thousands of visitors to the exposition the salient facts relating to Canada's progress in industrial chemistry. An electrically-driven exhibit was installed which presented in graphic form by a series of flashlights the most outstanding facts of Canada's chemical and metallurgical industries.

The desirability of consolidating all the work done in the Bureau relating to the production of iron and steel and the fabrication of products from these metals was met during 1921 by the organization of a special division. The first task of the division was the consolidation of the collected reports relating to every phase of the industry. By the end of February, 1922, this had been completed, and preparations were going forward upon the Bureau's first complete report on the iron and steel industry. The report will contain in one cover the production of pig-iron, steel ingots and castings in detail, and the fabrication of iron and steel products of every kind.

Beginning with January, 1921, a monthly series of mimeographed bulletins giving the production of pig-iron, steel ingots and castings in all grades was inaugurated and met with the general approval of manufacturers. It was found possible to collect and compile the information with sufficient promptitude to issue the statement by the 15th of the following month.

General Manufactures.

Mr. J. C. Macpherson, chief of the branch on the statistics of general manufactures, reports:—

In co-operation with various manufacturers' associations and prominent manufacturers the forms used for collecting the statistics for 1921 were improved with a view to render them more in line with records, methods of accounting, etc. Special attention was given to the improvement of the reports for a number of industries amongst which may be cited the following: saw-mills and logging, rubber goods, clothing, woollen goods. A marked improvement was noted in the manner in which the reports were completed by the firms reporting. The proportion of reports received perfect increased by about 15 per cent. In addition the regrouping of industries to bring together closely related industries under the supervision of the same clerks materially improved the work. The press letters and reports that were issued were consequently of a much more comprehensive and detailed nature than in previous years.

The number of inquiries received from the public is constantly on the increase, and a large volume of information has been supplied during the year. For the most part the information requested is of a special nature and does not follow the lines of the ordinary compilations. In all but a few instances it has been possible to satisfy these inquiries.

By arrangement with the Forestry Branch of the Department of the Interior, special information was collected by the Bureau as to the quantity, kind and value of lumber used by wood-using industries. The inquiry is to cover a period of four years, the Dominion being divided as follows: (1) Ontario, (2) Quebec, (3) Eastern provinces, (4) Western provinces. Ontario and the Eastern provinces have now been covered, and preparations are under way for the province of Quebec. For Ontario alone some 10,000 reports were collected.

With a staff decreased by eleven clerks some 5,000 additional reports were collected, audited and compiled, and the additional work for the Forestry Division was carried on without extra help, in addition to the special work rendered necessary by elaboration of the schedules and by the inclusion of additional questions by request of manufacturers' associations, etc. Though such

analysis as the cities and towns compilations, the classification of employees and the classification of plants by value of production, as well as the study of proportionate production as between small and large establishments could not be undertaken, the above record was rendered possible only by the increased efficiency and improved organization of the staff.

External Trade Branch (Statistics of Imports and Exports)

Mr. W. A. Warne, in charge of the branch on statistics of imports and exports, reports as follows:—

Revision of Trade Classification.—At a series of conferences between representatives of the Bureau of Statistics and the Department of Customs, the classifications used in collecting, analysing and issuing trade statistics were considerably enlarged and otherwise improved, while the systems of work in the Bureau and the department were brought into complete co-ordination and harmony. In connection with this revision a large number of leading manufacturing and commercial concerns throughout Canada had previously been consulted as to their views concerning additional items in the classifications which would be of special value to their businesses. As a result of these conferences, more than 300 new items have been added to the classifications during the last three years, the number being about equally divided between the import and export lists. The system of grouping, adopted in 1920, has also been improved; so that inquiries for statistics of various categories of commodities may be answered without delay and with the maximum of accuracy. Under present arrangements a conference between the Bureau and the Department of Customs is held annually for the thorough consideration of the changes in the classification suggested in the course of the year's work. At the conference in October, 1921, twenty additions were made to the imports and eight to the exports classification, chiefly in response to requests from various business interests.

Annual Trade Report.—The Annual Trade Report for the year introduced several new features in Canadian trade statistical presentation. The arrangement is now in three sections as follows: (1) Summary tables, including twenty-five statements of an introductory and summary character, giving (*a*) a general historical review of trade back to Confederation and (*b*) an analysis from various points of view of recent or current trends, generally over a five-year period. (2) Detailed tables, giving the current statistics for all items of the trade classifications, with numerous totals and recapitulations by groups and classes. These tables are two in number, the first containing detailed information respecting all commodities imported, with countries whence received, for a five-year period, the figures for the latest year being further extended to show the amount imported and the duty collected under the General, Preferential and Treaty tariffs respectively. The second table contains details of all Canadian commodities exported, with country of destination, for a five-year period, also the exports of foreign commodities for the last two years only. In the presentation of these statistics the items are grouped on the principle of *Component Material;* i.e., under such headings as "Agricultural and vegetable products," "Animals and animal products," "Fibres, textiles and textile products," "Wood, wood products and paper," "Iron and its products," etc., making, in all, nine main groups. (3) To the above was added a section analysing the imports and exports by main groups and degree of manufacturing classified according to *origin* (e.g., "articles of agricultural or vegetable origin," "of animal origin," "of marine origin," "of forest origin," "of mineral

origin," etc.) and also according to their *use* or *purpose* (e.g., "food," "clothing," "producers' materials," etc.). Another important innovation was the "bilingualizing" of the report; the French text is now printed side by side with the English, thus obviating the necessity of printing two reports and gaining the advantage of issue in both languages simultaneously. The new format has been cordially received by financial, industrial and commercial interests. The Bureau is now issuing a more complete and concise annual trade report than was ever before published in Canada.

Monthly Trade Report.—This report was issued as heretofore, with certain amendments and added details designed to make it more useful to the public. The addition of hundreds of new items has increased the size of the publication. There has been a decided gain in respect to timeliness of issue during the year, the various numbers reaching the public, on an average, nineteen days earlier than in the previous year. The average elapsed time between the receipt of monthly data in the Bureau from the Department of Customs and the despatch of first copy to the printer was three and one-half days, compared with five days in the previous year.

Monthly Advance Trade Summary.—The branch has continued the issue of a Monthly Trade Bulletin, giving a general statistical summary of Canada's trade, in advance of the detailed report. There was an urgent demand for such preliminary information. This bulletin is issued on or about the 24th of each month.

Special Trade Statements.—A feature of the work has been the great increase in the number and circulation of special statements. Inquiries for such statements have been received in constantly increasing numbers, originating from almost every line of Canadian enterprise, including industrial, commercial, transportation, banking and other activities. The branch now prepares, as a regular feature of its month's work, some thirty different advance trade statements to meet urgent appeals from business interests. The number of these special compilations has doubled since last year as has also the number of addresses on the mailing list to receive them. Numerous other special statements were compiled during the year from British and foreign returns to meet the demand of Canadian exporters for information indicating the opportunities for extending Canadian trade abroad. Special statements were also compiled for the League of Nations, for the International Institute of Agriculture, and many others.

General.—On the whole, there has been a marked advance both in the quantity and the character of work performed by the branch. The lack of separate publications giving statistics of the trade of Canada with British and foreign countries, such as were published prior to 1917, has been responsible for a large increase of work in the compilation of special trade statements. In view of the urgent and increasing demand for such statistics it is suggested that a series of trade brochures be now issued on a conservative plan, showing the trade of Canada with (*a*) Africa; (*b*) Asia; (*c*) Central and North America; (*d*) Europe; (*e*) Oceania; (*f*) South America, and (*g*) West Indies.

Internal Trade Branch

Mr. F. J. Horning, in charge of statistics of internal trade, reports as follows:—

Grain Trade Statistics.—The report on the Grain Trade of Canada for the crop year ended August 31, 1920, was completed and published in due course.

The matter of grain statistics has been thoroughly discussed with the Board of Grain Commissioners for Canada, with the result that several new features have been added, and the reports for both 1920 and 1921 made more complete than any issued for previous years. The annual statistics of the Canadian grain trade may now be regarded as a comprehensive treatment of the production and movement of grains within Canada towards international markets and in relation to the cereal resources of the world.

Weekly grain trade reports are also issued in mimeographed form showing Canadian grain in store by elevators and grades with comparative figures for previous years; receipts and shipments of grain at the different classes of elevators subdivided according to their location; United States grain in store, with receipts and shipments, at the public elevators in the east. Monthly reviews are included in this series summarizing the receipts and shipments of grain by months with comparative figures for the previous year; movement of United States grain at the St. Lawrence and Canadian Atlantic ports; inspections of grain in both the Eastern and Western Inspection Divisions; exports of grain by customs ports of exit, with summary showing shipping routes. A further monthly statement is also included showing quantities of grain ground and products produced therefrom at flour and other mills in Canada, with totals for the Eastern and Western Inspection Divisions. Other supplemental and special statements are included from time to time.

Live Stock and Animal Products Statistics.—The second annual report covering the marketing of live stock and animal products for the calendar year 1920 was prepared and issued during the past year, in collaboration with the Dominion Department of Agriculture, several tables being added in order to round out the material and render the statistics covering this industry as complete as possible. The report traces the movement of animals from the farm through live stock yards, for slaughter and the manufacture of meat products or for export;—also the movement of live animals between province and province. The marketing of animal products is next dealt with and covered to show the various phases of production, visible supply and inter-provincial movement. A review of Canada's international trade in live stock and animal products in relation to world supply is added, together with a section on prices.

Coal Trade Statistics.—With the cessation of fuel control at the end of the fiscal year 1920-21, the collection and compilation of special data required for the use of the Board of Railway Commissioners for Canada in connection with the coal situation were discontinued. Monthly reports were continued from retail and wholesale dealers showing quantities of coal received, prices and stocks on hand at the end of each month.

Prices Statistics.—Records of the fluctuations of the wholesale prices of a selected list of commodities have been maintained in the Bureau since January, 1919. These prices, together with corresponding figures for the year 1913, are now being revised and tabulated, and index numbers are being calculated based on the average prices for 1913. When this material is completed it is proposed to publish same in the form of a special report, with anual supplements from time to time. Data will be compiled monthly and press letters issued covering same, so that current information on the subject of prices will be available. Retail prices of a selected list of commodities are also being compiled and tabulated in the Bureau, statements being sent each month to the Department of Labour and printed in the *Labour Gazette*. In addition to the retail prices of food commodities collected from retail dealers, a record of prices prevailing at farmers' markets throughout Canada has been maintained. The fluctuations of prices of stocks and bonds listed on the leading stock exchanges in Canada

are also recorded weekly in the Bureau. These prices are being tabulated for the years 1913, 1919, 1920, and 1921 and index numbers calculated showing the average prices for the year 1913 as a base. Parallel statistics will therefore be available covering both security and commodity prices. Data are also collected relating to fluctuations in the rates of interest and will be included in reports on security prices.

Information relating to the various services paid for through gas, water and electric rates, hospital charges, etc., is also collected and compiled in the Bureau. These data together with material showing tax rates, collected with other municipal statistics of the Finance Branch of the Bureau, and freight, telephone rates, etc., collected by the Transportation Branch, afford valuable information regarding those factors of the cost of living not represented by commodity prices.

Visible Supply—Cold Storage, etc.—A record of the visible supplies of food commodities in cold storage is compiled in the Bureau monthly and published in mimeograph form. The visible supply of grain in store in the country, interior terminal, public terminal and private terminal elevators in the Western Inspection Division and public elevators in the east is compiled and published weekly as set out above. Data regarding stocks of coal on hand are also collected monthly in connection with the coal trade statistics. Statistics are also collected weekly showing stocks of raw and refined sugar in the hands of refiners, receipts and meltings of raw sugar, manufacture and shipments of refined sugar. These are compiled and issued in the form of monthly press letters with a summary statement at the end of the calendar year. A quarterly inventory is also compiled and published showing stocks of raw hides and skins in the hands of Canadian packers, tanners and dealers and others.

Interprovincial Trade.—The Transportation Branch of the Bureau collects monthly traffic reports from railway companies showing loadings and unloadings of freight by classes of commodities according to provinces. With similar reports from water transportation companies, statements yielding a fairly comprehensive view of bulk interprovincial trade movements, will, it is thought, be feasible. Up to the present, however, no comprehensive data on coastwise trade have been obtainable. The railway reports have been used by the Transportation Branch as an index of the volume of traffic only.

Transportation Branch

Mr. G. S. Wrong, chief, reports as follows:—

The annual report on railway statistics is now issued on a calendar year basis instead of for the year ending on June 30, and advantage has been taken of the change to introduce several improvements in method of presentation, the net result being a material reduction in the size of the report. Conferences with the leading railway companies were held prior to the introduction of these changes.

A feature of the past year was the inauguration of a monthly report on railway operating revenues and expenses. This not only provides up-to-date information on a subject on which public interest is largely centred, but it enables an advance summary of the year's operations to be given out several months prior to the date at which similar statistics were previously available.

The first monthly railway traffic report, planned in 1920, was issued in April, 1921. In addition to its direct interest it throws a considerable light on the interprovincial movement of commodities.

In canal statistics additional statements on the movement of Canadian oats, barley and flour were introduced. A monthly mimeographed report on canal traffic was begun.

The usual statistical summaries of express, telegraph and telephone statistics were issued.

The staff of the branch was reduced by two during the year with the completion of extra work entailed by the reorganization of these statistics under Order in Council, P.C. 1754, August 29, 1919.

The transportation branch also collected and published the annual statistics of central power stations in Canada in co-operation with the Dominion Water Powers Branch, of the Department of the Interior.

Statistics of Finance

Lt.-Col. J. R. Munro, in charge of statistics of finance, reports as follows:—

Provincial Finance.—The co-ordination of provincial public revenues and expenditures which has been occupying the attention of the branch for some time has been completed for the five-year period 1916-1920, and the analysis is now ready for use in detail or for publication if it is thought advisable to issue a report. A summary will be published in the Canada Year Book. A classified statement of assets and liabilities of the provinces for 1919 and 1920 has also been carried out. National interest in matters pertaining to taxation and public finance has involved a growing demand upon the Bureau for statements which will show comparative conditions not only by years but by geographic distribution as well. As there is almost an entire lack of uniformity in methods of accounting as between the provinces the only method of obtaining comprehensive or accurate comparative statements is by an analysis of the nature just completed.

Municipal Finance.—The second report of a series dealing with municipal finance, showing statistics of towns in Canada having a population of from three to ten thousand, was compiled and printed during the year, while a third report giving similar data for towns having a population of one to three thousand is now ready for press. These reports are supplemental to the first report of the Bureau on municipal finance, which covered the cities of Canada of 10,000 and over. The demand for the last-mentioned report has been so large that a reprint was found necessary for 1920. The experience gained in the compilation of the first report led to slight alterations in the schedule of accounts which met with the general approval of civic officials. The Bureau's series of studies on the financial activities of urban centres of Canada having a population of one thousand and upward is not complete. Until some uniform scheme of reporting financial statistics is adopted and put into operation by municipalities and provincial governments throughout Canada, the present treatment of the subject by the Bureau would appear to be all that is feasible, though a file of individual municipal returns as issued is maintained.

Judicial Statistics Branch

The annual report on Criminal Statistics, prepared under the supervision of Mr. R. E. Watts, followed much the same lines as the two previous reports. The main body of the report consists of seventeen tables covering indictable and non-indictable offences by judicial districts and compiled according to the nature of offences, birthplace, occupations, religions, civil condition and education; summary convictions, juvenile offences, pardons and commutations, retrospective tables—1876 to date—respecting classified groups of offences with ratios, etc. To these are added statistics relating to penitentiaries and other penal institutions, 140 in number, police activities in urban municipalities of 4,000 and

over, court proceedings, pardons and commutations, etc. A special compilation of offences under the Opium and Narcotic Drug Act was added in view of the current interest in this class of crime. The collection of these statistics involved the distribution of 6,000 schedules and circulars of instructions to 500 court officials in 163 judicial districts.

Special attention was given during the year to the improvement of statistics relating to juvenile delinquency. A tentative form was issued as a basis of discussion with judges of juvenile courts, members of social service councils, probation officers, etc., the general object being to differentiate juvenile offenders and secure certain details as to home conditions, etc. which are considered of importance as bearing on the treatment of this class of offenders. A scheme for the collection of statistics relating to civil justice was drawn up as a basis for discussion should it appear desirable at any time to institute a statistical service of this character.

Education Statistics Branch

Prof. S. A. Cudmore, Chief, reports as follows:—

During the year ending March 31, 1922, the Education Statistics Branch of the Bureau prepared and published the first comprehensive Dominion-wide survey of education issued in Canada viz., an "Historical Statistical Survey of Education in Canada". This publication, the preparation of which entailed very considerable research in a hitherto undeveloped field of statistical work, was favourably received by the educational world both within and outside of Canada, as an attempt for the first time to deal comprehensively with Canadian education. The work was carried out under the immediate direction of Mr. M. C. Maclean, M.A.

Under the agreement reached at the Dominion-Provincial Conference on education statistics of 1920 the annual statistics of the provinces of Manitoba and Saskatchewan were compiled by the Education Statistics Branch, the results being placed at the joint disposal of the Departments of Education concerned and of the Bureau. The education statistics for Alberta were also compiled on the same plan, so that comparable statistics of education are now available for the three Prairie Provinces. In order to secure comparable results, Saskatchewan and Alberta have changed their statistical year for education statistics from the calendar year to the natural school year ending June 30, as recommended by the Dominion-Provincial Conference. The Department of Education of New Brunswick has also requested the Branch to draft a form of return for that province, which should include the information recommended at the Conference on Education Statistics. This work was completed with the minimum of change in the provincial statistics. The Department of Education for Nova Scotia has also accepted the scheme and states that "the new form of registers and returns will come into use in every school in the next school year". Besides its activities carried on in co-operation with the provincial departments, the Education Statistics Branch has carried out considerable complementary work. For instance, it has secured education statistics from numerous private schools which were not included in provincial returns; from the business colleges of the country; from the twenty-two universities and the forty odd professional, technical and affiliated colleges; besides making a first attempt to secure comparable statistics for the public libraries throughout Canada. It has also answered numerous inquiries from educationists, both within and outside of Canada, who are learning to look upon the branch as an authoritative and impartial source of statistics relating to Canadian education. Several of these inquiries were extensive, and were made at the request of officials of provincial Departments of Education.

General Statistics—The Canada Year Book, Etc.

Prof. S. A. Cudmore, editor of the Canada Year Book, and in charge of the branch on general statistics, reports as follows:

The chief single work of the General Statistics Branch is the preparation and publication of the Canada Year Book. This involves a revision of statistical tables covering practically the entire range of social and economic statistics, and the careful preparation of a considerable amount of descriptive matter therefor. The leading article of the 1920 Year Book dealt with "Reconstruction in Canada" and was written by the editor. It extended to 64 pages and entailed very considerable research. Other features were careful summaries of the Dominion and provincial legislation of 1920, and of the principal events of that year.

After a careful study of the statistics of current economic trend ("barometric" statistics) published in different countries by official authorities (the Federal Reserve Bulletin and the Survey of Current Business in the United States, Wirtschaft und Statistik in Germany), and by unofficial bodies (Babson's, Bradstreet's and Brookmire's in the United States, the Economist, the Statist and the London Times in the United Kingdom), the Branch has prepared a Monthly Review of Current Canadian Statistics which is being kept up to date. In connection with this feature of its work, the branch collects the statistics of bankruptcies under the Bankruptcy Act.

The branch has furnished materials during the year in response to many official and unofficial enquiries for statistics of a general character relating to Canada and other countries both within and without the British Empire. Among these, a considerable body of statistical information was prepared for the Canadian representatives at the Genoa Conference. In order properly to discharge its duties in answering inquiries, the branch is entrusted with the administration of the library of the Bureau, consisting of some 16,000 or 18,000 volumes on statistical and economic subjects, including the official statistics of practically every government in the world. One of the most strenuous tasks of the branch during the year was the moving of this library from the Daly Building to its present quarters without serious interruption to the library service.

An important part of the work of the branch has been the preparation of the material relating to Canada published in such official British publications as the Statistical Abstract for the several British oversea dominions and protectorates, and the Colonial Office list; also for such unofficial but important and widely circulated statistical annuals as the Statesman's Year Book, Whitaker's Almanac, the London Stock Exchange Office Intelligence (British), the New York World Almanac and the Brooklyn Eagle Almanac (U.S.), Heaton's Annual, Five Thousand Facts About Canada, Bank Reports, etc. The branch also prepares each month the Canadian statistics included in the League of Nations monthly statement. Recently it revised the Canadian material published in the Home and School Reference Work published by the Home and School Education Society of Chicago. While there is a limit to such activities, it is unquestionable that much accurate information concerning Canada has been disseminated in this way throughout the world.

I have the honour to be, sir,

your obedient servant,

R. H. COATS,
Dominion Statistician.

APPENDIX

REPORTS, BULLETINS, PRESS RELEASES, ETC., ISSUED BY THE DOMINION BUREAU OF STATISTICS

ADMINISTRATION—

Annual Report of Dominion Statistician.

POPULATION—

Census—

Bulletins of the Sixth Census of Canada, 1921. (A bulletin on the Population and area of each Province by Electoral districts, Cities, Towns and Villages, with a summary of rural and urban population.

The reports of the 1921 census will include three volumes on population and one on agriculture; there will also be issued a series of special reports on the Foreign-born, Origins of the People, Religions, Families, Housing, Literacy and School Attendance, Earnings of the People, Unemployment, etc., etc. A bulletin on the agriculture of each province will also be issued.

Reports of the Fifth Census of Canada, 1911: Vol. I. Areas and Population by Provinces, Districts and Subdistricts, with Introduction. Tables I to XV, pp. i-viii, 1-623. Vol. II. Religions, Origins, Birthplace, Citizenship, Literacy and Infirmities by Provinces, Districts and Subdistricts, with Introduction. Tables I-XLVI, pp. i-iv, 1-634. Vol. III. Manufactures for 1910 as enumerated in June, 1911, with Introduction. Tables I-XX, pp. i-xvi, 1-432. Vol. IV. Agriculture, with Introduction. Tables 1-90, I-XXXV, pp. i-xcv, 1-428. Diagrams 5 pp. Vol. V. Forest, Fishery, Fur and Mineral Production, with Introduction. Tables 1-51, I-XXVI; pp. i-l, 1-171. Vol. VI. Occupations of the People, with Introduction. Tables 1-25, I-VI, pp. i-xxxi, 1-469.

Bulletins of the Fifth Census of Canada, 1911: Manufactures of Canada—Dairy Industries—Agriculture, Prince Edward Island—Agriculture, Nova Scotia—Agriculture, New Brunswick—Agriculture, Quebec—Agriculture, Ontario—Agriculture, Manitoba—Agriculture, Saskatchewan—Agriculture, Alberta—Agriculture, British Columbia—Religions—Origins of the People—Birthplace of the People—Educational Status—Mineral Production—Infirmities—Ages—School Attendance.

Special Report of the Foreign-born Population. (Abstracted from the Records of the Fifth Census of Canada, June, 1911, 23 tables, 62 pp., 1915.)

Report of the Census of Population and Agriculture of the Prairie Provinces, 1916. Tables 1-54; I-XXVI, pp. i-lxiv, 1-356.

Vital Statistics.—Annual Report on Vital Statistics of Canada by provinces and municipalities. Monthly Report of Births, Marriages and Deaths, by provinces. Report of Conference on Vital Statistics, held June 19-20, 1918, pp. 1-48.

PRODUCTION—

I. General Summary of Production—

Including (1) Primary Production (Agriculture, Fishing, Furs, Forestry and Mining), and (2) Secondary Production, or General Manufactures.

II. Agriculture.—

(1) Monthly Bulletin of Agricultural Statistics. (Contains monthly reports on agricultural conditions, prices, weather, etc.—preliminary, provisional and final estimates of areas, yields, quality and values of field crops—numbers and values of farm live stock, poultry, etc.—fruit statistics—stocks of grain—annual summary of agricultural production—international agricultural statistics.) (2) Advance Summaries of Agricultural Statistics (monthly).

III. Furs.—

(1) Annual Report on Fur Farms. (2) Annual Report on the Production of Raw Furs.

IV. Fisheries.—

(1) Annual Report of Fisheries Statistics. (2) Advance Summary of Fish caught, marketed and prepared.

V. Forestry.—

(1) Annual summary of the value, etc., of forest production. (Covers operations in the woods for sawmills, shingle mills, pulp and paper mills, etc., production of mining timber; production of poles and cross ties, and farm production (decennial) of firewood, posts, etc.)

SESSIONAL PAPER No. 10

VI. Mineral Production: (Mining and Metallurgy).—

(1) General Reports: (a) Annual Report on the Mineral Production of Canada; (b) Preliminary Reports (semi-annual) on the Mineral Production of Canada. (2) Coal: (a) Annual Report on Coal Statistics for Canada; (b) Monthly Report on Coal Statistics for Canada. (3) Annual Bulletins on the following subjects: (a) Gold Production; (b) Silver Production; (c) Copper Production; (d) Nickel Production; (e) Lead Production; (f) Zinc Production; (g) Copper-Gold-Silver Industry; (h) Auriferous Quartz Mining Industry; (i) Placer and Hydraulic Gold Mining Industry; (j) Nickel-Copper Industry; (k) Silver-Cobalt-Nickel Industry; (l) Silver-Lead-Zinc Industry; (m) Miscellaneous Non-Ferrous Metals, including Antimony, Molybdenite and Tungsten; (n) Asbestos Industry; (o) Feldspar Industry; (p) Graphite Industry; (q) Mica and Phosphate Mining Industries; (r) The Salt Industry; (s) Miscellaneous Non-Metallic Minerals, including Actinolite, Barytes, Chromite, Corundum, Fluorspar, Magnesite, Magnesium, Sulphate, Manganese, Mineral Pigments, Mineral Waters, Natro-alunite, Peat, Pyrites, Quartz, Sodium, Sulphate and Talc; (t) Stone Quarrying Industry; (u) Sand and Gravel Industry; (v) Portland Cement Industry; (w) Miscellaneous Clay Products, including clay sewer pipe, Brick and Tile, Stoneware and Pottery, Fire Brick and Fire Clay, Kaolin and other Clays.

VII. Manufactures.—

(1) General Summary, by Provinces and leading cities—(Industrial groups classified by component materials, purpose, etc.—comparative statistics).

(2) Manufacture of Vegetable Products—General report. Special Bulletins as follows: (a) Coffee and Spices; (b) Cocoa and Chocolate; (c) Fruit and Vegetable Preparation, including canning, evaporating and preserving; (d) Pickles, Sauces, Vinegar and Cider; (e) Flour and Cereal Mills; (f) Bread and other bakery products; (g) Biscuits and Confectionery; (h) Macaroni and Vermicelli; (i) Liquors, distilled; (j) Liquors, Malt; (k) Liquors, Vinous; (l) Rubber Goods and Rubber Boots and Shoes; (m) Starch and Glucose; (n) Sugar Refineries; (o) Tobacco Products; (p) Linseed Oil and Oil Cake.

(3) Animal Products and their manufactures—General report. Special Bulletins as follows: (a) Dairy Products; (b) Slaughtering and Meatpacking; (c) Fish and Fish Products; (d) Leather Tanneries; (e) Harness and Saddlery; (f) Leather Boots and Shoes; (g) Leather Goods; (h) Leather Gloves and Mitts.

(4) Textile and Allied Industries—General report. Special Bulletins as follows: (a) Cotton Textiles (Cloth, yarn, thread and waste); (b) Woollen Textiles (Cloth, yarn, blankets, felt and waste); (c) Silk Mills; (d) Clothing (Men's and women's factory and custom); (e) Hats, Caps and Furs; (f) Hosiery and Knit Goods; (g) Neckwear (Men's and women's) and Fancy Goods; (h) Oiled Clothing and Waterproofs; (i) Corsets; (j) Carpets, Rugs and Mats; (k) Cordage, Rope and Twine.

(5) Manufactures of Wood and Paper Products—General report. Special Bulletins as follows: (a) Lumber, Lath and Shingle Industry (containing a statistical survey of Operations in the Woods contingent to this industry); (b) Pulp and Paper; (c) Cooperage; (d) Planing Mills, Sash and Door Factories; (e) Printing, Book binding, Publishing, Lithographing and Engraving, Stereotyping and Electrotyping, Maps and Blue Prints; (f) Furniture; (g) Carriages, Wagons, and Sleighs, and Materials thereof; (h) Canoes, Rowboats and Launches; (i) Coffins and Caskets; (j) Containers—Boxes and bags (paper); boxes and packing cases (wood); baskets and crates; woodenware.

(6) Iron and Its Products—General Report. Special Bulletins as follows: (a) Blast Furnaces and Steel Mills (annual); (b) Foundries and Machine Shops; (c) Iron and steel fabrication; (d) Machinery; (e) Boilers and Engines; (f) Agricultural Implements; (g) Motors and Cycles; (h) Railway Equipment; (i) Heating and Ventilating appliances; (j) Wire and wire goods; (k) Sheet Metal Products

(N.B.—A Monthly Report on the Production of Iron and Steel is issued)

(7) Manufactures of Non-Ferrous Metals—General report. Special Bulletins as follows: (a) Aluminium Products; (b) Brass and Copper Products; (c) Lead, Tin and Zinc Products; (d) Manufactures of precious metals; (e) Electrical apparatus.

(8) Manufactures of Non-Metallic Minerals—General report. Special Bulletins as follows: (a) Aerated Waters; (b) Asbestos and Allied Products; (c) Coke and Gas; (d) Glass and its Products; (e) Graphite Products; (f) Petroleum Products; (g) Stone Products; (h) Abrasives.

(9) Chemical and Allied Products—General report. Special Bulletins as follows: (a) Coal Tar and its Products; (b) Explosives, Ammunition, Fireworks and Matches; (c) Fertilizers; (d) Medicinal and Pharmaceutical preparations; (e) Pigments, Paints and Varnishes; (f) Soap, Perfume, Cosmetics and Toilet preparations; (g) Inks, Dyes and Colour compounds; (h) Wood distillation and extracts.

(10) Miscellaneous Manufactures. Special Bulletins as follows: (a) Brooms and Brushes; (b) Musical Instruments (including pianos and organs, and phonographs); (c) Musical Instrument Materials and Parts; (d) Buttons; (e) Trunks and Valises.

(11) Summary Reports on Groups of Industries, classified according to the use or purpose of their principal product as follows: (a) Food; (b) Clothing; (c) Drink and Tobacco; (d) Personal and Household Goods; (e) Books; (f) Equipment; (g) Materials for further manufacture.

VIII. Construction.—(a) The Building and general construction industry; (b) Railway Telephone and Telegraph—Construction, Maintenance of Way and Repairs; (c) Government and Municipal Construction; (d) The Bridgebuilding Industry; (e) The Shipbuilding Industry; (f) Building Permits—Monthly Record.

EXTERNAL TRADE (IMPORTS AND EXPORTS)—

Annual Report of the Trade of Canada; Monthly Report of the Trade of Canada; Monthly Summary of Trade Statistics.

INTERNAL TRADE—

Grain.

Annual Report on the Grain Trade of Canada; Weekly Report on the Grain Movement; Monthly Report on Mill Grind.

Live Stock, etc.—

Annual Report on Live Stock and Animal Products; Monthly Report on Stocks in Cold Storage; Quarterly Report on Visible Supply of Hides and Skins.

Price Statistics.—

Producers Prices; Wholesale and Jobbers' Prices; Retail Prices; Municipal Market Prices; Prices of Securities; Prices of Services.

Sugar.—

Monthly Report of Visible Supply of Raw and Refined Sugar.

TRANSPORTATION, COMMUNICATIONS AND PUBLIC UTILITIES—

Railways and Tramways.—

Annual Report on Railway Statistics; Monthly Bulletin re Railway Revenues, Expenses, Income and Operating Statistics; Monthly Statement re Traffic of Railways.

Express.—

Annual Report on Express Statistics.

Telegraphs.—

Annual Report on Telegraph Statistics.

Telephones.—

Annual Report on Telephone Statistics.

Water Transportation.—

Report of Census of Canadian Registered Ships; Annual Report on Canal Statistics; Monthly Report on Canal Statistics; Annual Report on Navigation.

Electric Stations.—

Central Electric Stations in Canada.

FINANCE—

Annual Report on Provincial Finance; Annual Municipal Statistics of Cities of 10,000 population and over; Annual Municipal Statistics of Urban Municipalities of 3,000 to 10,000 population; Annual Municipal Statistics of Urban Municipalities of 1,000 to 3,000 population.

JUSTICE—

Annual Report on Criminal Statistics.

EDUCATION—

Annual Report on Education Statistics; Report of Conference on Education Statistics, held October 27-28, 1920; Historical Statistical Survey of Education in Canada; Library Statistics of Canada, 1920-21; Statistics of Business Colleges; Statistics of Private Elementary and Secondary Schools; Statistics of Universities and Colleges.

SESSIONAL PAPER No. 10

GENERAL—

Employment.—Monthly and Annual Reports, by Localities and Industries.

The Canada Year Book, 1920, with Map of Canada and Newfoundland, a Statistical Summary of the Progress of Canada, and maps and diagrams, pp. i-xviii, 1-768.

Contents: I. Reconstruction in Canada, by S. A. Cudmore, B.A., (Tor.), M.A. (Oxon.), F.S.S., F. R. Econ. Soc., Editor Canada Year Book, Dominion Bureau of Statistics, Ottawa. II. Chronological History of Canada. III. Physical Characteristics of Canada including Geographical Features; Economic Geology, 1919, by Wyatt Malcolm, Department of Mines, Ottawa. IV. Area and Population. V. Education. VI. Climate and Meteorology. VII. Production. VIII. Trade and Commerce. IX. Transportation and Communications. X. Labour, Wages and Prices. XI. Finance. XII. Administration. XIII. Legislation and Principal Events of the Year, 1920. XIV. Extracts from the Canada Gazette.

The Canada Year Book, 1921, with frontispiece "The Arms of Canada," map of Canada and Newfoundland, a Statistical Summary of the Progress of Canada since 1871, and maps and diagrams, pp. i-xxiii, 1-909.

Contents: I. The Constitution and Government of Canada, by S. A. Cudmore, B.A. (Tor.), M.A. (Oxon.), F.S.S., F. R. Econ. Soc., Editor Canada Year Book. II. Provincial and Local Government in Canada; Maritime Provinces, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia, by various writers. III. Chronological History of Canada. IV. Physical Characteristics of Canada, including special articles on Geology and Economic Minerals, Geology in Relation to Agriculture in Canada, the Flora of Canada, the Faunas of Canada and Economic Geology of Canada, 1920-21. V. Area and Population. VI. Education. VII. Climate and Meterology, including article on the Climate of Canada since Confederation. VIII. Production, including article on the Development of Agriculture in Canada. IX. Trade and Commerce. X. Transportation and Communications. XI. Labour, Wages and Prices. XII. Finance. XIII. Administration. XIV. Legislation and Principal Events of the Year, 1921. XV. Extracts from the Canada Gazette.

ANNUAL REPORT

OF THE

DEPARTMENT OF THE INTERIOR

FOR THE

Fiscal Year ended March 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1923

To His Excellency The Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., etc., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

The undersigned has the honour to lay before Your Excellency the report of the transactions of the Department of the Interior for the fiscal year ending March 31, 1922.

Respectfully submitted,

CHARLES STEWART,
Minister of the Interior.

OTTAWA, September 1, 1922.

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REPORT

OF THE

DEPARTMENT OF THE INTERIOR

1921-22

Hon. Charles Stewart,
Minister of the Interior,
Ottawa.

Sir,—I have the honour to submit the 49th Annual Report of the Department of the Interior for the fiscal year ended March 31, 1922.

The total area of the three Prairie Provinces is 485,642,698 acres, of which 30,853,020 acres are water. Of the total area 200,484,841 acres have been surveyed. Of the surveyed area 129,074,028 acres are held under homestead entry or other government grant, that for homesteads alone representing 54,339,100 acres. Dominion Parks and Forest reserves cover 25,094,400 acres, and school lands endowment 9,335,000 acres. The surveyed area now available for entry is 25,896,400 acres.

There was an increase of 1,960 in the number of homestead entries the past year, 7,349 being granted, compared with 5,839 the previous year. Manitoba showed the greatest percentage of increase, having more than doubled the number of the year before.

As was expected, the number of soldier grant entries declined, there being but 1,655 entries compared with 2,892 the previous year. This form of entry will gradually decrease with the lapse of time.

Letters patent issued were 13,116, accounting for 2,024,519 acres. This shows a decline in the three Prairie Provinces, but an increase in area is registered in the Northwest and Yukon Territories and in Dominion lands in British Columbia.

No school lands were offered for public sale by auction during the year, but approximately 44,400 acres were disposed of, at an average price of $13.30 per acre to the Soldier Settlement Board, railway companies and school districts.

The world-wide readjustment of financial conditions and the temporary lower earnings from agriculture were reflected in a reduced revenue from the sale of Dominion lands. The Hudson's Bay Company and the railway companies also felt the effect of the above conditions in a decrease of land sales and of the average price secured.

Outstanding features in the development of mineral resources were the continued activity in the new gold field in northern Manitoba, which bears evidence of being valuable; the more intensive development of the new silver-lead areas in the Mayo district, Yukon Territory; and the drilling for oil over very wide area throughout the west. The bringing in of producing oil wells in northern Montana has resulted in an increased amount of drilling on the Canadian side of the border.

The total quantity of timber cut on Dominion lands showed a slight decrease, but there were increases in some important lines. Timber licenses and permits in force cover approximately 6,250 square miles. The 6,578 grazing leases in force cover more than six million acres. Over five thousand permits to cut hay were granted.

The growth in the number of visitors to our National parks, noted in my report of last year, still continues and this year shows a large increase over the previous one. Good progress has been made on the construction of the Banff-Windermere highway, which is expected to be ready for travel next year, and which, no doubt will attract a large number of motorists.

The buffalo herd now numbers over 6,000 and must be reduced. Steps will be taken soon to dispose of about 1,000 of the surplus males.

The enforcement of the Migratory Birds Convention Act is resulting in a most encouraging increase of wild birds, especially wildfowl, throughout the Dominion.

The Historic Sites Board has recommended action in the case of some 600 sites and steps are being taken by the department to have them suitably marked.

Losses from forest fires were lighter than in the preceding year due partly to climatic conditions and partly to increased efficiency and better equipment of the forest protective organizations. Aeroplanes were for the second season successfully used in forest protection, the work being carried on in co-operation with the Air Board.

Greater interest was manifested than ever before in tree-planting on prairie farms and the work is steadily extending.

The work of forest research as regards the regeneration of forests, carried on at forest experiment stations in different parts of Canada, and as to the most efficient utilization of forest products, conducted at the Forest Products Laboratories, show steady progress.

During the year a total of 7,500 pounds of the seeds of Canadian trees was collected and shipped to Great Britain for use in reforestation work by the British Forestry Commission.

The increasing interest in irrigation is shown in the greater number of applications for water rights, 228 in 1921, compared with 196 in 1920 and 177 in 1919. Surveys and construction work have commenced on several large irrigation projects.

Drainage schemes for the reclamation of swamp lands in the Prairie Provinces have received much attention. Surveys have been made and plans suggested covering approximately 220,000 acres in the three provinces.

New water-power development to the extent of approximately 300,000 horse-power is reported for the year. This was practically all in Eastern Canada. Further development of the water-power of the Winnipeg river is under way, the Manitoba Power Company and the city of Winnipeg having power projects under way.

During the year in order to provide administration for the resources in the Northwest Territories, the Northwest Territories Branch was established and administrative offices were opened at Fort Smith with suboffices at Norman and Resolution. At these offices matters connected with the oil and other mineral resources, forests, lands, health, transportation, and educational institutions were dealt with during the year.

The scientific work of the observatories at Ottawa and Victoria has been continued. A large amount of data has been secured and compiled which is of much service to the country at large both directly and through governmental departments.

Evidence of the effect of the educational work concerning Canada's natural resources is seen in the widespread and growing interest therein, especially in Great Britain and the United States, 25,500 requests for information being received by the Natural Resources Intelligence Branch, as compared with 20,304 last year. Much has been done both to arouse and satisfy this demand by the use of lantern slides and lectures and by the distribution of literature.

With a view to improving the efficiency and effecting economy in administration, the Topographical Survey, Geodetic Survey, and International Boundary divisions have been amalgamated under Dr. E. Deville as Director General of Surveys.

The total revenue of the department from all sources for the year was $5,667,419.79, compared with $10,189,596.52 for the preceding year, $3,312,090.74 of this decrease being accounted for in lessened sale of lands.

I append hereto a brief synopsis of the work of the various branches, followed by more detailed statements submitted by the head of each branch.

Your obedient servant,

W. W. CORY,
Deputy Minister.

OTTAWA, August 30, 1922.

LANDS PATENTS

LETTERS PATENT

The number of letters patent issued during the last fiscal year was 13,116, covering an area of 2,024,519 acres, being a decrease of 4,831 letters patent and a decrease in the area patented of 728,975 acres, as compared with the total area of the previous year. These totals were made up by provinces as follows:—

Province	Patents	Acres
Manitoba	2,395	362,175
Saskatchewan	5,551	883,043
Alberta	4,792	739,849
British Columbia	342	38,761
Yukon Territory	20	391
Northwest Territories	16	300
	13,116	2,024,519

HOMESTEAD ENTRIES

Homestead entries to the number of 7,349 were granted during the year, aggregating an approximate area of 1,175,840 acres, being an increase of 1,960 in the number of homestead entries granted as compared with the previous year.

Province	Entries
Manitoba	1,488
Saskatchewan	2,733
Alberta	2,928
British Columbia	200
	7,349

There were 1,655 soldier grant entries made during the year, aggregating approximately 264,800 acres, made up by provinces as follows:—

	Entries	Acres
Manitoba	383	61,280
Saskatchewan	590	94,400
Alberta	614	98,240
British Columbia	68	10,880
	1,655	264,800

There were 291 sales made during the fiscal year for 10,493 acres of land, with an average for each sale of about 36 acres.

ACCOUNTS AND REVENUE

During the fiscal year $742,451.72, including $165,790.25 interest on deferred payments, was received on account of purchased homesteads, pre-emptions and ordinary sales, being a decrease of $961,960.55 as compared with the payments received during the previous year.

The sum of $133,862.69 was received for entry fees, improvements and sundries, making a total revenue for the fiscal year of $876,314.41.

Refunds were made amounting to $55,428.86, as follows:—

Value of improvements collected on cancelled homesteads	$45,340 54
Overpayments on sales; and of moneys paid on account of purchased homesteads and pre-emption sales, entries for which had been cancelled	10,088 32
	$55,428 86

SCHOOL LANDS

Owing to the prevailing financial depression no school lands were offered for sale by public auction during the fiscal year ending March 31, 1922. A considerable area, however, was disposed of by private sale to the Soldier Settlement Board, railway companies, and school districts, as shown by the following statement:—

Province	Area	Value	Average per acre
Manitoba	4,065.01	$ 41,565 74	$10 22
Saskatchewan	35,340.66	475,031 18	13 44
Alberta	4,985.48	75,997 42	15 24

The net revenue derived from all sources for the fiscal year was as follows:—

Manitoba	$ 203,795 51
Saskatchewan	1,475,299 55
Alberta	602,688 53
Total	$2,281,783 59

The amount paid to the Government of each province, after deducting principal moneys and cost of administration, was as follows:—

Manitoba	$ 49,201 92
Saskatchewan	383,248 70
Alberta	256,149 61
Total	$ 688,600 23

The expenditure incurred was as follows:—

Manitoba	$ 16,292 16
Saskatchewan	49,947 00
Alberta	34,633 36
Total	$ 100,872 52

The amount standing to the credit of the fund of each province as on March 31, 1922, was as follows:—

Province	Total amount at credit of fund	Amount invested in debenture stock	Balance of fund uninvested
Manitoba	$ 5,635,839 74	$ 5,635,000 00	$839 74
Saskatchewan	12,027,514 84	12,027,000 00	514 84
Alberta	6,471,051 94	6,471,000 00	51 94

Mining Lands

Activity is being maintained, and continued interest is being manifested in the development of the mining resources on lands administered by this department. Coal mining in the western provinces continues to be the principal mining industry. Next in importance is placer mining in the Yukon Territory. Considerable quantities of the silver lead ores of the Mayo district in that territory are being mined for shipment to outside smelters. The amounts realized from shipments made last year were quite up to expectations, and the tonnage being mined for treatment is steadily increasing.

Prospects for obtaining oil in large quantities in that portion of southern Alberta adjacent to the international boundary are most encouraging, as several producing wells are reported to have been completed not far south of that boundary.

Everything that has occurred during the past year in connection with lode mining in northern Manitoba verifies the forecast that in that province this type of mining gives promise of developing into a great industry.

Timber and Grazing Lands

The total revenue derived from timber, grazing, and hay lands amounted to $723,322.81.

There were manufactured on licensed timber berths 188,227,507 feet board measure of lumber, in addition to large quantities of other materials, including 25,262,905 laths, 307,397 railway ties, 971,623 lineal feet of mining timber, etc. There were also manufactured under permits 41,972,406 feet board measure of lumber, besides other materials.

Ninety-one new timber berths were granted, which included one pulpwood berth covering a large area in the province of Manitoba. Timber berths held under license and permit cover 6,249 square miles.

There are 6,518 grazing leases in force, of which 581 were issued during the year. Over 5,000 permits to cut hay were taken out. The grazing leases cover a total area of 6,341,952 acres.

Canadian National Parks

The steady increase in travel to the Canadian National parks continues to be one of the most gratifying features in connection with the work. Last year practically every park showed an advance in the number of visitors, both foreign and Canadian. In the larger parks it is interesting to note an increased percentage of Canadians, in the smaller a much larger registration of people from a distance. The former shows that our own people are awakening to the attractions and recreational opportunities offered by these great reservations, the latter reveals that the smaller parks are outgrowing the local stage and are coming to be widely known. The greatest advance this year as well as last was in Waterton Lakes park, which was visited by approximately 20,000 visitors. This is rapidly becoming one of the most popular of the parks and in spite of its comparative isolation, it promises soon to rival some of the larger reservations along the main railway lines.

The chief work of importance was the prosecution of the Banff-Windermere highway. This road is now nearing completion and it is expected that it will be ready for travel by the coming spring, or a year in advance of the date set by the agreement between the Government of British Columbia and the Dominion. There is no doubt that as soon as this road is ready we may look for a tremendous increase in motor visitors. Requests for information as to the date of its opening have been received from practically every state in the union as well as all parts of Canada, and

it is anticipated that 10,000 cars will go over the road the first summer. An international traffic of this magnitude means much to this country both on account of the foreign revenue it will bring in and the increased international knowledge and good will that must inevitably result.

The Government buffalo herd continues to increase and now numbers over 6,000. This is as many as the present park can adequately support unless its boundaries are extended. The preponderance of males in the herd has also become too great for the welfare of the herd and it is probable that some disposal will be made of about 1,000 of these in the immediate future.

The results of the enforcement of the Migratory Birds Convention Act are shown in a most encouraging increase in wild bird life of many kinds. This is especially true of wildfowl where the beneficial effects of the prohibition of spring shooting are becoming widely evident. The staff of honorary wardens now numbers 1,722, including all forestry officers, and fishery officers along the Atlantic coast. It is found that a good deal of educational effort is still necessary with regard to the Act and special efforts were directed to this end. During the year over 125,000 pamphlets were distributed and approximately 35,000 posters. The most valuable publication was probably a small leaflet entitled "Lessons on Bird Protection," prepared for use in the schools, which has been approved and authorized by the ministers of education in each province. The extension of the work of the National Audubon Society to the Canadian schools was also an important step and one that will be of great educational value. The creation of bird sanctuaries is going steadily forward. An officer of the department spent considerable time investigating conditions on the north shore of the gulf of St. Lawrence and has recommended the creation of ten sanctuaries there. The creation of public shooting grounds which will ensure the public of a fair share of the game is also being considered and recommendations have been received from several of the provincial governments as to areas which they consider advisable.

Good progress has been made with the marking and preserving of the historic sites of national importance. Over 600 sites have been considered by the Historic Sites Board and recommendations as to the action which should be taken made to the department. Eighty-two of these have been selected to receive immediate attention. Attractive tablets, from a design prepared by the well-known Canadian artist, Ernest Fosberry, R.C.A., are now being cast in bronze to be used in connection with the marking of the selected sites, and a competition for designs for suitable landmarks will be initiated in the near future.

Forestry

Though the general commercial depression resulted in decreased revenues for the branch in some lines of its work, these decreases were offset by gains in other items of revenue, so that the total revenue of the branch shows a satisfactory increase for the year.

Losses from forest fires were considerably less than during the year 1920-21. The total number of fires was appreciably less, the proportion of large fires (i.e., those covering an area of ten acres or more) was also less, and the total area burned over was only about one-fourth of that burned the previous year. The season was exceptionally favourable in Manitoba and Saskatchewan, but in Alberta and the Salmon Arm district of British Columbia the fire-danger was exceptionally great. Improved organization of the fire-fighting force and the use of improved equipment both contributed to keep down the fires. The use of aeroplanes in the work of forest patrol and fire-fighting was a development of the year. These machines were used in the provinces of Manitoba, Alberta, and British Columbia with excellent results.

There was a decrease in the quantity of timber taken from the reserves, except in the case of fuel-wood, building logs, and railway ties. As might be expected from the depression in the grazing industry, the number of permits for grazing shows a slight decrease. Two new co-operative grazing associations were formed during the year; there are now over fifty of these associations pasturing cattle on the forest reserves.

A notable indication of the importance of Canada's forests to the Empire was the sending to the British Forestry Commission of 7,500 pounds of seed for use in afforestation in the British Isles. This was all seed of British Columbia coniferous species.

The number of trees distributed to farmers in the Prairie Provinces shows a gratifying increase, as does the number of new applicants for trees. The value of shelter-belts in increasing the comfort of the farmhome and in the growing of fruit trees, small fruits and tender vegetables is being more and more appreciated. The work of experimental planting and seeding on the reserves was continued.

The Forest Products Laboratories report an increasing number of requests for technical information and service. The research and investigative work is increasing, and good progress is reported in the various lines of work generally.

The silvicultural-research staff continued its work in the investigation of methods of handling forest areas in order to secure the highest possible continuous production. This work is being carried on in most of the provinces. Work on methods of estimating timber, of handling pulpwood species, of natural and artificial regeneration of the forest, and of handling timber sales under proper silvicultural methods has so far shown the most immediately useful results.

Reclamation

Irrigation.—In preparing for the extensive irrigation development which is now taking place in southern Alberta, the Reclamation Service has played a major part. Since 1894, when the Northwest Irrigation Act was passed, investigations of water supply and surveys of irrigable lands have been advocated and carried out well in advance of any strong demand for development of particular areas.

During the year a total of 228 applications for water rights of all kinds was received. When compared with 196 for the year 1920 and 177 for 1919, some idea is obtained of the steadily increasing demand for legal rights in water.

On October 4, 1921, the International Joint Commission defined the method of apportioning the waters of the St. Mary and Milk rivers and their tributaries in Montana, Alberta, and Saskatchewan. The uncertainty in connection with the development of irrigation projects depending upon these streams as a source of water supply is now largely removed and progress with these projects may be expected in the near future.

An area of 9,400 acres was irrigated this year by the Canada Land and Irrigation Company, as compared with 4,200 acres in the year 1920. Over 10,000 acres were irrigated in the Taber Irrigation District project, as compared with 2,000 acres in 1920. Both of these projects were operated for the first time in 1920.

Construction was commenced on the Lethbridge Northern Irrigation District project during the year and it is expected that both this and the United Irrigation District, on which construction will be commenced in 1922, will be in readiness for operation in the spring of 1923.

Surveys of the Lethbridge Southeast project were completed this year and estimates of cost were prepared during the winter months. Another huge project now being investigated in detail is the North Saskatchewan project for the irrigation

of a tract of approximately 1,700,000 acres to the northeast of the Canadian Pacific Railway Irrigation block. Surveys of other projects near Lethbridge and Medicine Hat were followed up during the year and in some cases completed. It is expected that the construction of several of these projects will soon be commenced. A full account of each will be found in the part of this report describing more fully the work of the Reclamation Service.

Duty of water experiments were continued at Brooks, Vauxhall, and Coaldale, with excellent results. A very valuable collection of data has been obtained on the basis of which a special bulletin is being prepared. This bulletin, which should be exceedingly useful to irrigators in Western Canada, will be printed in pamphlet form for distribution.

Drainage.—The Drainage Division of the Reclamation Service was organized in 1919. A few parties were sent out in that year but it was only possible to do reconnaissance work. In 1920 and 1921, with a full staff and a well planned programme, more important investigations were undertaken and much valuable information was obtained of the nature and extent of submerged and swampy areas in Alberta, Manitoba and Saskatchewan. Projects comprising approximately 220,000 acres of swamp and submerged land have been recommended as suitable for Governmental reclamation.

As an experiment in the reclamation of Crown lands, the Reclamation Service has undertaken to drain Waterhen lake near Kinistino, Saskatchewan. Contracts for work on this project were let early this year and construction proceeded actively throughout the season. It is expected that the works will be completed in the autumn of 1922.

Surveys of areas requiring drainage are being proceeded with along similar lines to those that have been followed in connection with irrigation development. The way is being prepared for the drainage of these areas by districts organized for co-operative effort under provincial laws.

Surveys of the Carrot River Triangle project were commenced in the spring of this year. This tract lies near the town of Pas, Manitoba, between the South Saskatchewan and Carrot rivers and comprises approximately 1,100 square miles. So much of this area is inaccessible during the summer months that the parties working on it were kept in the field well into the winter. The soil of the area seems eminently suitable for agriculture and should the project prove economically feasible its construction would mean much to this northern district, in which considerable mining development is now taking place.

Twenty-five applications were received during the year for permission to construct small projects. These were investigated and, where favourable consideration was given, the necessary surveys were made and plans prepared. The general progress of the various schemes under development has been satisfactory.

Water Power

An analysis of the general water-power situation throughout the Dominion made by the Dominion Water Power Branch indicates that the total installation now totals 2,763,000 horse-power, the increase during the past fiscal year amounting to 300,000 horse-power. Unlike last year, much of this increase is due to entirely new construction and, as it is unusual for any power site to be developed to full capacity in a single stage, extensions to these new plants will continue to show from year to year a steady increase in horse-power installed.

The increase in power installation during the past year above noted, although a record for the Dominion was practically confined to eastern Canada. West of Ontario conditions are only now beginning to be satisfactory for the initiation of large

projects. That the lull in the hydro-electric enterprise noted since the outbreak of the great war is now ended is evidenced by the activity of the Manitoba Power Company at Great Falls, on the Winnipeg river, where an initial development of 56,000 horse-power is now in progress. The ultimate capacity of this site is 168,000 horse-power and its development is the first notable new enterprise of its kind undertaken west of the Great Lakes for nearly a decade.

The city of Winnipeg municipal plant at Pointe du Bois, on the Winnipeg river, first delivered power in October, 1911, and in the ten years since the completion of the initial installation has been steadily increasing its output and adding new units until its development to maximum capacity is nearly accomplished. The city's engineers are now making detail surveys at Slave falls, some five miles down stream for the construction of a new development which will be required in a comparatively short time.

The price of coal and the general unsettled state of that industry coupled with an easing of the financial situation and increased stability in the matter of labour and materials are bringing about a definite public preference for hydro-electric energy. There can be little doubt therefore that Canada, already famous for her water powers is on the eve of still greater achievements in this direction.

The general departmental progress in water-power matters has been distinctly satisfactory during the past year. The new Dominion Water Power Regulations, which had for some years been engaging the attention of officials of the Dominion Water Power Branch in the closest research, were promulgated by Order in Council of October 31, 1921. While no doubt experience will indicate the necessity for certain changes or provisions in these regulations, it is nevertheless believed that they form the most up-to-date and workable regulations yet evolved which, at the same time, protect the public interest and offer reasonable attraction to private corporate enterprise.

The Hydrometric Survey of Canada instituted by Order in Council of July 19, 1920, established a uniform system of basic water resource investigatory effort across the Dominion.

The Water Resources Index-Inventory work has been continued with satisfactory results, the collation of data regarding water-power development and water resources generally throughout the Dominion was substantially increased. This inventory makes it possible to place government officials, Dominion or provincial, and members of the general public interested therein in immediate touch with the most up-to-date and authentic information obtainable.

Surveys

Topographical Surveys Branch

Details of the work of the Topographical Surveys Branch are presented in complete form in the annual report of the branch, which is issued as a separate publication of the department; the following is a brief summary of what was accomplished during the year.

Thirty-seven parties were engaged in field work as compared with forty-five parties during the season of 1920-21. Of this number, four were employed in Manitoba, five in Saskatchewan, five in Alberta, three in the Railway Belt of British Columbia, sixteen partly in one province and partly in another, and three were employed in the Mackenzie River district, Northwest Territories.

Mackenzie River Surveys.—Perhaps the most interesting feature of the season's survey programme was the work accomplished in the Mackenzie River district. It consisted of an accurate survey of the main waterways—Slave river, Great Slave lake, and Mackenzie river—from the 30th base line to a point 110 miles below Nor-

man. Control during the course of the survey was obtained by a combination of chained bases with methods of triangulation and stadia adapted to the form of the traverse and the physical characteristics of the shoreline.

Operations extended over a distance of 1,000 miles involving the survey of more than 4,000 miles of shoreline and the erection of monuments at intervals of from two to five miles.

Three parties co-operated in the work and considering the distances in that country, the difficulties of transportation and conditions under which operations had to be carried on, the results obtained were remarkable. The surveys are intended to provide control for the survey of mineral claims, oil leases, and other surveys resulting from recent important discoveries of oil and minerals in that district. Much additional work of an exploratory nature which will assist materially in the development of the valuable resources of the district was also completed.

Topographical Surveys.—Topographical surveys for the revision of four sectional maps were completed by as many parties, which brings the total number of these sheets which have been revised to seventeen, eleven of which are available for distribution. The areas covered by these sheets are confined principally to the vicinities of important centres of population and comprise Dufferin, Emerson, Brandon, and Winnipeg sheets in Manitoba; Moose Jaw, Regina, and Saskatoon sheets in Saskatchewan; and Blackfoot, Red Deer, Peace Hills, and Edmonton sheets in Alberta. The maps are greatly in demand and many letters expressing appreciation of their excellence and utility have been received.

One party, employing photographic methods, was engaged on revision work in the Railway Belt of British Columbia, where ordinary methods of survey are impracticable for this purpose, on account of the rough nature of the country.

In compliance with a request from the Forestry Branch of this department, another party undertook a plane-table topographical survey of Cypress Hills forest reserve. The purpose of this survey is to make available for general administrative purposes a map which will, with reasonable accuracy, show the topography of the area and serve for developing detailed forest management of the reserve.

Land Classification Surveys.—Three parties were employed upon detailed land classification surveys. One party was engaged upon reconnaissance work in a comparatively unsettled district to determine what lands should be given a more detailed examination at a later date.

The classification of lands for settlement purposes has been one of the most important features of the activities of the Topographical Surveys Branch since 1918. Some seventeen million acres have been examined and classified to date and maps, plans, and reports showing the results of these surveys are available for Peace River and Saint Paul des Metis districts in Alberta, Prince Albert district in Saskatchewan, and the district between lakes Manitoba and Winnipegosis in Manitoba.

Stadia Surveys.—The stadia survey of water areas for the purpose of revising the plans of townships surveyed many years ago and in which many of the lakes have partially or completely dried up was continued by four parties as compared with eleven parties employed during the previous season. This work was begun in 1913 and is now almost completed.

Interprovincial Boundary Surveys.—Two parties were engaged upon the continuation of the survey of the boundary between the provinces of Alberta and British Columbia. The survey of this line has been in progress for several years, and that portion lying between the International Boundary and Yellowhead pass is now completely surveyed, as well as part of the 120th meridian where it forms the boundary between these provinces in the Peace River district.

Another party was employed upon the delimitation of the boundary between the provinces of Manitoba and Ontario, northerly from Winnipeg river.

These surveys, involving as they do the question of jurisdiction, not only as to the ownership of land, but also to the application of provincial laws and the administration of justice, are both necessary and important.

Levelling Operations.—Seven parties were employed upon the further extension of levels, a total of 3,638 miles being run. A record of the elevations of a district is essential to its economic development and in the absence of such a record, questions such as the feasibility of constructing railways, the drainage of wet areas, the improvement of rivers for various purposes, and many other matters on which the development of the country depends cannot be satisfactorily dealt with. Since the inception of levelling by this branch in 1908, more than 34,900 miles of levels have been run.

Miscellaneous Surveys and Resurveys.—As in previous years, there was an urgent demand for small resurveys and scattered miscellaneous surveys. These necessitated the employment of three travelling parties. Some work of this class was also accomplished by two parties employed upon the survey of additions to several small townsites.

Subdivision Surveys.—Only three parties as compared with nine for the previous season were employed upon subdivision surveys in Manitoba, Saskatchewan, and Alberta. Two parties were engaged for part of the season on subdivision in the Railway Belt of British Columbia, the remainder of the season being devoted to miscellaneous work and the collection of information for sectional map revision.

General.—The foregoing summary of the work of the Topographical Surveys Branch reviewed in the light of similar statements appearing in the reports of the Department of the Interior for the years preceding the war, reveals a gradual but nevertheless a decided change in the activities of the branch.

Topographic land classification, exploratory and other important classes of surveys are now being given more attention. Reductions in the appropriations for surveys during the past four years, made necessary by conditions brought about by the war, have prevented extensive development.

Topographic surveys have been in progress in Canada for some years and a considerable amount, including surveys executed by the use of photographic methods, has been done by this branch. A limited number of parties have been employed in the western provinces on small scale topographical work, and the results of the surveys have been most satisfactory. The object is to complete a rapid survey on a smaller scale than one mile to an inch and the methods employed, although not absolutely accurate, are most economical and yield results sufficient for practical purposes.

Much of the information required is already available in the form of sectional maps which have been issued by the branch for many years. Valuable data also are obtained from the various provincial, municipal and railway offices. The field work is conducted by small parties which, travelling rapidly over the country, secure by expeditious methods information regarding topography, elevations, roads, improvements and other data not otherwise available. The whole is co-ordinated and the maps, which are compiled and drawn by the surveyors in charge of the field parties, are printed in the office. In the open country, a survey party can revise one sheet, or 4,300 square miles, in a season at a cost of approximately $1.42 a square mile.

Land classification surveys were first undertaken at the request of the Soldier Settlement Board, a number of Dominion land surveyors on the staff of the branch being selected to obtain information required in settling returned soldiers on the land. The result of these surveys has contributed much to the efficiency of the work of the board and has proven of great benefit to settlers in general. The greatest value of the work lies in its use in the intelligent direction of the settlement and early

development of new lands by providing intending settlers with accurate and reliable information which will assist them in selecting homesteads in suitable districts.

GEODETIC SURVEY

During the past fiscal year marked progress has been made in extending the Geodetic Survey over the Dominion of Canada, thus laying a foundation upon which accurate maps of the country are based, and also furnishing the control necessary for all other surveys.

The Anticosti Island Base Line was prepared and measured during the year. This base line is nearly twelve and a half kilometres (7¾ miles) long, and will serve as a splendid control for the scale of the triangulation on the lower St. Lawrence.

Geodetic astronomy comprised the occupation of two Laplace stations, West Base on Anticosti island, and Derby in the Cape Breton triangulation net; also the observing of the azimuth of the line Cap-Chat to Castor on the St. Lawrence triangulation.

This year saw the completion of the reconnaissance survey along the east coast of New Brunswick from the bay of Fundy to the bay of Chaleur, and in eastern Nova Scotia the triangulation to the vicinity of Sydney.

Agreements were made with the provincial forest services of New Brunswick and Quebec for a division of the cost of towers which are required by this Survey on certain triangulation stations to obtain the necessary intervisibility of stations and by the forest services as look-out towers for the detection and localization of forest fires.

In Quebec the reconnaissance for primary triangulation on the Saguenay river was partly completed, while the reconnaissance on the western half of Anticosti island was finished. Tower building was carried on at the stations at the west end and along the southwest coast of Anticosti island, and along the Gaspe coast opposite. Angle measuring observations were taken on all primary and secondary triangulation stations, together with lighthouses and other points of interest along the gulf of St. Lawrence in the area bounded on the west side by a line joining Point-des-Monts lighthouse on the north shore and Cap-Chat lighthouse on the south shore, and on the east side by a line joining Thunder river on the north shore and St. Antoine village on the south shore. Triangulation stations, one primary and one secondary, were established on Mount Albert in the Shickshock mountains.

The work in Quebec also included the location of the necessary points for the control of the aerial survey carried on in the hills north of Ottawa. These points were located by triangulation and traverse and their elevations determined.

Primary triangulation, city triangulation, precise levelling, and precise traverse comprised the operations in Ontario.

In the spring of 1921 an arrangement was made between the United States Coast and Geodetic Survey and the Geodetic Survey of Canada for co-operative action in extending a primary triangulation net along the 49th parallel International Boundary to form a basis for all future triangulation work which may be required in the West. It was agreed that the Canadian portion of this survey should extend from the lake of the Woods to the 109th meridian and that the United States parties should survey the section between the 109th meridian and the Pacific coast. Reconnaissance covering about 500 miles of the Canadian section was completed.

In British Columbia reconnaissance was carried up the Fraser river from Vancouver to Kamloops. Through the co-operation of the Air Board a hydroplane was available for this work. Along the coast reconnaissance and primary triangulation were continued between Namu and Prince Rupert. This section of primary trian-

gulation is part of an international co-ordinated scheme for triangulation control along the Pacific coast through northern United States, British Columbia, south-eastern Alaska, Yukon and the main part of Alaska.

Nine hundred and eighty-five miles of precise levelling were added to the level net, making the total amount to date 15,016 miles. Three hundred and eighty-four permanent bench-marks were established, bringing the total number at the present time to 4,544.

It is to be noted that the lines of precise levels which have been run by the national geodetic organizations of the United States and Canada will strengthen the precise level nets of the two countries.

INTERNATIONAL BOUNDARY

The surveying operations in connection with the demarcation of the International boundary along the different sections from the Arctic ocean to the Atlantic, a total distance of 4,083 miles, have been practically completed.

The boundary line as defined in the different treaties follows in many places along the middle of rather small, tortuous streams and in order to have a practical line of demarcation it was necessary to define a great number of short courses. Most accurate traverses were necessary, and the length and direction of each course were determined.

These conditions were found between the height of land and the Rainy lake on the Ontario-Minnesota boundary, along Monument brook at the head of the St. Croix river between Maine and New Brunswick, and along the southwest branch of the St. John river between Quebec and Maine.

One party operated on the St. Croix river and another on the Ontario-Minnesota boundary, through the Rainy Lake system. They each worked in connection with a United States party.

A party, headed by the engineers to the Canadian and United States sections of the commission, made an inspection of the boundary line and an examination of the monuments between the gulf of Georgia and the summit of the Rocky mountains. A number of monuments have been damaged and will have to be replaced or repaired. It was strongly urged by the customs and immigration officers that the vista which was cut out fifteen years ago, be reopened; particularly in the vicinity of the different customs houses. It is so overgrown in many places, particularly across the Fraser delta, that there is no indication of the line.

The report on the re-establishment of the boundary from the 49th Parallel through the gulf of Georgia, and through the straits of Juan de Fuca to the Pacific ocean, was submitted to Parliament and distributed to the public.

During the year eighteen maps of the 49th Parallel series were engraved and printed, nine of the section from the St. Lawrence to the bay of Fundy and four of the British Columbia and S.E. Alaska section.

NORTHWEST TERRITORIES

The oil strike on the Mackenzie river, in August, 1920, approximately 50 miles north of Fort Norman, Northwest Territories, was given wide publicity by the newspapers and magazines throughout Canada and the United States. All indications pointed to an oil stampede into the Mackenzie district on the opening of navigation in 1921, and it was deemed advisable to establish the Northwest Territories Branch in Ottawa for the purpose of administering the natural resources and transacting departmental business pertaining to those territories.

An administrative party was despatched to Fort Smith, via Peace river. This party, consisting of a recorder, subrecorders, foremen carpenters and other workers, with supplies for the erection of suitable buildings, office equipment, and stationery, left Peace River on May 5, 1921, in two scows, with thirty tons of supplies, and arrived at Fort Smith, without mishap, on the 26th of the same month.

Arrangements had been made with the Department of Indian Affairs to secure sufficient logs and lumber for the construction of buildings at Fort Smith, but on arrival the administrative party found there were no logs or lumber available. Owing to the scarcity of labour the Indian agent at Fort Smith had not been able to secure the materials.

It was necessary to purchase two teams, wagons, etc., to transport the freight over the portage between Fitzgerald and Fort Smith, as the tractors and local teams were kept busy hauling supplies for the oil and transportation companies, prospectors, etc.

Immediate steps were taken to secure logs and lumber for the erection of permanent buildings at Fort Smith and to establish Crown Timber, Land, and Mining Recording offices for the district. The Recording office at Fort Smith was permanently opened for business on July 1, 1921, and subsequently suboffices were opened at Norman and Resolution. For the purpose of accepting applications from persons who had travelled from the Pacific coast, the mining recorders at Dawson, New Westminster and Edmonton were made temporary subrecorders for the Mackenzie district.

ADMINISTRATION AND INSPECTION

The administration building at Fort Smith was completed on August 15, 1921. Settlers, prospectors and tourists were furnished with all possible information regarding the natural resources of the Northwest Territories and every effort was made to facilitate the development of the country.

Timber regulations, applicable to the Mackenzie district, were drafted and authorized, and steps taken for their enforcement.

An inspection was made of all settlement lots and the outstanding claims for free grants or purchases were satisfactorily dealt with after the extinguishment of the Indian Title in October, 1921. In each of the settlements one or two lots were reserved for Government purposes in the event of the establishment of land agencies, radio-telegraph stations, aerodromes, etc.

At the request of the Dominion Statistician the census of the white population of the Northwest Territories was taken, also the census of the Eskimo of the Mackenzie delta.

The appointment of officials and the drafting of forms to be used for registering births, marriages, and deaths in the Northwest Territories were taken up with the Bureau of Statistics. New forms, which it is presumed will cover the requirements for some years, are in course of preparation and will be distributed during open navigation this year.

The annual return up to December 31, 1921, showing the number of permits issued by the Commissioner, to import liquor into the Northwest Territories for medicinal and sacramental purposes, was laid before Parliament on March 22, 1922. The number of permits issued was 81 for 207½ gallons, including 70 gallons of sacramental wine.

It was decided to maintain the office of the Mining Recorder, Crown Timber and Land Agent at Fort Smith during the winter, and keep open the Mining Recording suboffice at Norman. There was a staff of seven at Fort Smith, and of two at Norman. Reports from these outlying points, have reached this office by every available mail.

During the temporary absence of the postmaster at Fort Smith the mining recorder acted in that capacity, and a report on mail conditions generally was submitted to the Post Office Department which has resulted in increased mail facilities for 1922.

The administration of the Northwest Game Act was transferred in the course of the year from the Commissioner of Dominion Parks together with the administration of the Wood Bison herds near Fort Smith, and the reindeer herd at Lobster Bay, Quebec.

HOSPITALS AND HEALTH

In the inspection of the settlements, hospitals, boarding schools, and day schools were visited, and a grant to the hospitals in the Mackenzie district was arranged, for all patients, on a per capita per diem basis.

The Royal Canadian Mounted Police reported that, in the Coronation Gulf district, infanticide, particularly in the case of females, was practiced by some of the Eskimo. When a tribe was on the march, and a female child was born it gave the parents more or less trouble, and quite frequently the infant was destroyed. As a result a number of Eskimo tribes were reported to be decreasing. This condition led to an appropriation of $1,500 to be expended in the purchase of wearing apparel, flour, needles, thread, and similar articles, which will be distributed by the Royal Canadian Mounted Police to Eskimo parents with children under five years of age, as an inducement to retain and bring up their children. This condition of affairs is limited to the Coronation Gulf district.

During the summer of 1921 an epidemic of smallpox broke out among the natives in northern Alberta and the disease spread into the Northwest Territories. With the aid of additional medical health officers, Royal Canadian Mounted Police and the hospitals, the epidemic was successfully combated and finally stamped out. Provision has been made for additional medical assistance in the Norman area.

ROADS, TRADE, AND NAVIGATION

The saw-mill at Fitzgerald, owned and operated by the Department of Indian Affairs, was transferred to this department during the past winter. At the same time the staff of the mining recorder, who remained at Fort Smith during the winter, took out a quantity of logs which will be turned into lumber ready for delivery, on the opening of navigation, to settlers and prospectors who have been unable to secure building material from private sources.

During the winter considerable preliminary work was done on a new highway from the Alberta boundary to the centre of the settlement at Fort Smith.

The Union Bank of Canada opened a Branch at Fort Smith in June, 1921, affording banking facilities for Government offices as well as for the public generally. This convenience was greatly appreciated by the settlers and prospectors.

Experimental farming operations which were carried on by the Indian Agent at Fort Smith have been discontinued and the stock and implements transferred to the mining recorder. A certain amount of land was broken in the fall and seeding operations will, no doubt, be commenced in the spring.

On behalf of the Department of Marine and Fisheries aids to navigation were established on the Athabaska, Slave, and Mackenzie rivers, which proved of great benefit to prospectors and the transportation companies.

ARCTIC EXPEDITION

Owing to the necessity for an extensive inspection and the placing of additional administrative posts on the islands of the Arctic archipelago, the northern exploration ship *Arctic*, which had been on lightship duty in the gulf of St. Lawrence for several years, was transferred from the Department of Marine and Fisheries to the Department of the Interior and was overhauled and outfitted for a trip to the north. The work of preparation was all but completed in 1921, but it was finally decided to postpone the sending of the expedition. The conduct of the expedition was placed in the charge of the Northwest Territories Branch and at the end of the fiscal year it was anticipated that preparations would be completed and that the *Arctic* would make the trip to the north in the season of 1922.

NORTHWEST COUNCIL

In order to deal with the increased work the Northwest Council was increased from four to six members and is now composed as follows:—

Commissioner—

W. W. Cory, C.M.G., Deputy Minister of the Interior.

Deputy Commissioner—

Roy A. Gibson, Assistant Deputy Minister of the Interior.

Councillors—

J. W. Greenway, Commissioner of Dominion Lands.

Dr. Charles Camsell, Deputy Minister, Department of Mines.

H. H. Rowatt, Superintendent of Mining Lands Branch, Department of the Interior.

O. S. Finnie, Director of the Northwest Territories Branch, Department of the Interior.

Lt.-Col. Cortlandt Starnes, Assistant Commissioner, Royal Canadian Mounted Police.

The council is composed wholly of officers of the Dominion Government who perform their council duties without any extra remuneration.

NORTHWEST TERRITORIES REVENUE

STATEMENT—Revenue collected in the Northwest Territories in the fiscal year 1921-22.

	$ cts.	$ cts.
Dominion Lands—		
General sales	1,170 90	
Sundry fees	100 00	
Miscellaneous fees	30 00	
Suspense account	12 00	
		1,312 90
Crown Timber—		
Timber dues	2,370 68	
Hay permits	36 75	
		2,407 43
Mining—		
Petroleum	113,443 40	
Registration fees	180 00	
Mining fees	1,408 00	
		115,031 40
General—		
Liquor permit fees	194 00	
Fines and forfeitures	222 00	
Trappers' licenses	1,599 00	
Traders' licenses	1,280 00	
		3,295 00
Grand total		122,046 73

DOMINION OBSERVATORY, OTTAWA

Work with the meridian circle was prosecuted on the same programme as in recent years, observations having been obtained on 139 nights. The observations for the present programme are now practically completed, with the exception of two or three months' work which can not be carried out till the coming autumn and winter.

Field observations for latitude and longitude were carried out at five stations in the Mackenzie basin. Since only one of these stations could be reached by telegraph the connection for longitude was made by wireless telegraphy. For this purpose the wireless time signals sent out from three United States stations were used, the signals being observed both at the field stations and at Ottawa; the longitudes are thus based strictly upon Ottawa, irrespective of the accuracy of the time signals employed. At the one station which could be reached by telegraph the longitude was determined both in the ordinary way and by wireless signals, the interagreement between the two methods being highly satisfactory. A publication has been issued containing the results of all latitude and longitude observations which have been carried out by the

Observatory up to the end of 1919, together with the solution and adjustment of the Canadian longitude net.

This observatory also co-operated in the Australian longitude campaign carried out by Adelaide Observatory, by receiving the wireless time signals sent for that purpose by Annapolis, Maryland, U.S.A., and Lafayette, France.

The time service has been maintained as in previous years, and the time system in the new Parliament Buildings has been connected with the observatory. Ten secondary master clocks are synchronized continuously; these in turn control over 550 clocks and dials of various kinds, including the tower clocks at the observatory and the city post office. Relays beating seconds are maintained in three offices in the city, one clock is synchronized every hour, time signals are sent out by telegraph and telephone, and the time is recorded on the various seismographs at the observatory.

A time comparison is made daily with Washington and Paris by means of the wireless time signals sent out by Annapolis and Lafayette. This is in co-operation with the International Time Commission in connection with an investigation of unexplained discrepancies in meridian observations. Experimental work has been continued in connection with the chronograph registration of wireless time signals, and a method of registration has been developed which is practically free from systematic error.

The 15-inch equatorial telescope has been utilized as heretofore for obtaining radial velocities of stars, a total of 942 spectograms having been made, with exposures varying from 30 to 70 minutes; 102 direct photographs (average exposure three hours) have also been obtained with the short focus camera attached to the equatorial. The work has largely been confined to the study of stars of the Beta Canis Majoris type; quite a large number of these have been discovered; several of them have been studied somewhat in detail and show very interesting peculiarities. Considerable experimental work has also been done with the 8-inch doublet camera in order to determine the light curves of some of the stars of this type at the same time as the radial velocity curves.

Three publications have been prepared during the course of the year, describing the investigations in progress.

The equatorial has been available to the public on Saturday nights, and this privilege has been taken advantage of by many visitors.

With the coelostat and solar spectograph, 304 plates comprising over 1,450 observations recording over 13,000 strips of solar, iodine, and electric arc spectra were secured. Also 52 photographs of the sun were taken with the coelostat camera to record sun-spots, and measurements of the spectograms have been carried on as usual. A first instalment (four sections) of "Spectroscopic Investigations of the Sun" (Volume VI of "Publications of the Dominion Observatory") has been prepared. Some results of the year's work may be mentioned: Discovery and elimination of an important error due to capillary lag in oil of micrometers; measurements of sunspot spectra support our pore theory of variation in solar wave-lengths, and this theory has been applied to cepheid variation; measurements of the solar rotation in 1915 were found to decline progressively from January to July—a change explained in terms of "blended spectrum." The new double spectrocomparator, designed in 1917, was satisfactorily finished in the observatory machine-shop. Vacuum arcs were designed in preparation for an extended programme of observation of arc and solar wave-lengths.

With the photographic equatorial telescope the observing programme has not been regularly carried out owing to lack of observers. Some work has been done on the reduction of previous observations, the magnitude scale derived being in good agreement with that of Professor Parkhurst. The thermopile equipment, consisting of thermopile, light-source, condensing lenses, and projection lenses, has been mounted and some experimental work has been done with it during the year.

The operations of the magnetic survey were carried out along the lines followed during previous years. Field observations for the magnetic elements were made at over fifty stations in southeastern Ontario, Quebec, and the Maritime Provinces. A publication has been issued giving the results of all our magnetic observations up to 1920, comprising about 500 magnetic stations from coast to coast, and containing the values of declination, inclination, and intensity, all reduced to epoch 1921, including a map showing graphically the declination at each of the magnetic stations.

Gravity work, which had been suspended for some years, owing to the lack of an observer, was resumed during the last season. The stations occupied, in addition to observations at Washington and Ottawa for standardization purposes, were the same as those occupied for latitude and longitude in the Mackenzie basin. Work of this kind, in this region, forms a marked addition to available data, on account of the far northern situation of the stations, very little work having been done in latitudes as high as this. Such work is also useful, in this particular region, in connection with the possibilities of the existence of oil and gas. A publication has been prepared covering this work as well as giving a reduction of all previous gravity work done in Canada.

During the year there were eighty-nine earthquakes registered at Ottawa, of which but a very small number—eighteen in all—admitted of a distance estimation; the season was remarkable for the small number of well-marked earthquakes. All the instruments were kept recording continuously, and in addition to the Bosch seismographs and the Wiechert vertical instrument, there was received and installed, as a north-south component, one of the Milne-Shaw seismographs on order. This instrument is now satisfactorily recording in the vault previously provided for its reception.

The series on the Location of Epicentres was continued, the locations for 1917-18-19 appearing in two publications.

Reports have been made monthly to 120 stations, the reports being issued as a rule between the first and the fifth of the month for the preceding month; reports from these stations have also been received here.

The seismographs at Halifax and Saskatoon have furnished us with their records for reading and the results have been published in our bulletins. The undagraph at Chebucto Head, Nova Scotia, has also furnished records of the wave counts which have been incorporated into our records here.

The observatory library at present contains nearly 11,000 bound books and pamphlets; the bindery has continued to be very useful in binding and numbering books and pamphlets, mounting maps, repairing books and other such work.

During the year there have been two international astronomical meetings, one at Middletown, Conn., the other at Toronto. At both of these meetings the Observatory was represented by the Director and several members of the staff; thirteen papers were presented, covering the various phases of observatory work.

Dominion Astrophysical Observatory, Victoria, British Columbia

This is the fourth annual report of the work of the Dominion Astrophysical Observatory in which actual observations commenced on May 6, 1918. The details of the work are presented in complete form in the publications of the observatory of which 11 numbers were published during the year, the total number to date being 31. It will be necessary here only to present a brief description of the work.

The observing weather during the past year has been poorer than even the previous year which itself was poorer than the two first years. In the year April 1, 1921, to March 31, 1922, 1,561 stellar spectra were photographed, between the numbers 5829 and 7389. The total number of nights the dome was opened and

observing started was 224. On 7 of these nights no successful observations were made and on 27 nights only one spectrogram was secured. On 97 nights the sky remained clear for a considerable part of the usable time, on the average about 60 per cent, and on 93 nights the sky was clear for the whole night. On the remaining 141 nights the sky was either wholly cloudy or so broken that no observations were attempted.

The first main programme of work of the observatory, the determination of the radial velocities of upwards of 700 stars from Boss' Preliminary General Catalogue was completed during the year and the results published in two numbers, Vol. II, No. 1, "The Radial Velocities of 594 Stars," and Vol. I, No. 26, "Eighty-eight Spectroscopic Binaries," Vol. I, No. 10, "One Hundred Spectroscopic Binaries," having appeared earlier. Observations and measurements for this major work were completed by July, the preparation of the manuscript for publication occupied about a month and it was finally received from the printers about the end of the calendar year. The main publication contains the velocities of 537 constant velocity stars, the velocities of the systems of 22 spectroscopic binaries and of 35 suspected binaries, a total of 594 stars. There were measured and reduced to obtain these velocities 4,970 stellar spectrograms and the magnitude of the work will be more easily understood when it is stated that the stars whose radial velocities had been previously determined at all other observatories over a time interval of twenty years are only about 2,000 in number. In the course of this work 188 spectroscopic binaries were discovered here as compared with about 600 discovered elsewhere.

A new observing programme comprising about 1,500 stars between 5.5 and 6.5 visual magnitude selected from Harvard 50 was prepared and observations of some of these stars were secured. It was, however, felt desirable, before actively undertaking a programme of this magnitude, to finish up some smaller pieces of work which had arisen in the course of the previous programme. The principal one is the determination of the absolute magnitude, and hence of the distance (spectroscopic parrallax it is generally termed), of the stars whose velocities had been determined here, and which are susceptible to treatment by this method, about 400 in number. This method depends upon estimates of the relative intensities of certain pairs of lines in the spectra of the stars and has been developd by Prof. Adams, of Mount Wilson. Spectra of a considerable number of additional stars to those already obtained are required for standardizing the method. It is of considerable magnitude and will take about another year for completion.

The director has prepared a programme of observation of all the Oe and Oe5 stars within reach at Victoria. Stars of this spectral type are relatively few in number, only about 30 in the northern sky, are the stars of highest temperature and are of special interest in the scheme of stellar evolution. Some progress has been made in the observation and measurement of these stars.

Considerable preliminary work has been done on the distribution of intensity in stellar spectra but this investigation is not yet far enough advanced to permit of any statement as to results. Most of the time after the completion of the first programme of radical velocities has been devoted to the observation and discussion of three O-type spectra. In these spectra the presence of the enhanced helium components to the Balmer lines, these components being intermediate members of the well known Pickering Series, has been conclusively demonstrated. These components previously found in the laboratory and now found in the stars give strong support to Bohr's theory of atomic structure. From the measured wave lengths of these stellar lines, independent values of the Rydberg and other atomic constants were obtained. These values are in excellent agreement with laboratory values and show that atomic structure and behaviour is similar in the stars and the laboratory. Other

deductions as to temperature and other physical conditions are being made and the whole work will appear as Vol. I, No. 30, of our publications.

In addition to these main investigations considerable additional time has been spent by the director on the determination of the spectroscopic orbits and dimensions of eclipsing variables and by other members of the staff on the orbits of spectroscopic binaries.

The telescope and spectrograph remain unchanged since last year's report and they have worked in the same satisfactory manner as heretofore.

During the year an ultra-violet spectrograph for use at the principal focus of the 72-inch telescope was obtained from Hilgar, London. This instrument was received about the new year and considerable of the director's time was spent in testing and adjusting it. Preliminary exposures to stars show very well defined and satisfactory spectra and the instrument should be especially useful in giving information about the little-known ultra-violet portion of stellar spectra.

The privilege extended to the public of viewing celestial objects through the telescope every Saturday evening has been continued and is much appreciated, the average number through the summer months being about 200 and even in the bad weather of the winter generally reaching 50.

Papers by various members of the staff have been read at scientific meetings during the year and many of these have appeared in scientific journals. These investigations have in general been published in detail in the Publications of the Dominion Astrophysical Observatory.

Natural Resources Intelligence

While the past year has been one of marked decline in prices—imposing a trying period upon almost every branch of basic industry—interest has not flagged regarding the natural resources of Canada as a field for development. More inquiries than usual concerning natural resources have been received from abroad, particularly from the United States.

Information Service.—During the year the Natural Resources Intelligence Branch received some 25,500 requests for information and, in response, issued to correspondents 66,700 maps and 137,000 reports and pamphlets. Roughly 8,800 publications were supplied to commercial firms, 8,300 to prospective land settlers, direct and about 84,000 to general applicants. The distribution by countries—37,700 copies to residents of the United States, 24,300 to correspondents in Great Britain, and 1,500 to individuals in other countries—denotes the widespread publicity obtained respecting Canadian resources. In the preparation of the material required to conduct this intelligence service generous aid was received from federal and provincial departments and 136,000 copies of publications were supplied to such departments for their own use or for further distribution. Several sets of slides with accompanying lectures on Canadian life and resources were sent to Great Britain, Newfoundland, Australia, New Zealand, and the United States for use by officials or by publicity agencies. In addition, a circulating lantern-set library for the use of public lecturers, schools, community clubs, etc., has been widely used, especially in Ontario. Branches of the departments of education in Saskatchewan and Alberta have acted as agents for this service in their respective provinces.

Unoccupied and Uncultivated Lands.—Intermingled with the settled agricultural lands of the Dominion are large areas of vacant lands, notably in the Prairie Provinces. As it is generally realized that the total acreage of such lands is very great and that the problem of their early settlement is of first importance, steps have been taken to provide effective machinery for placing the land-seeker in touch with owners of unoccupied areas. Investigations have been carried out by the Department

through its Natural Resources Intelligence Branch, and lists of vacant lands have been published giving information as to their area, nature of soil, improvements, prices and terms of sale or lease, and the owners' names and addresses. Maps have also been issued showing the exact location of such lands in western Canada. To date these investigations have covered Manitoba, Saskatchewan, Alberta, Nova Scotia, New Brunswick, and Prince Edward Island. A new survey is now being made of the situation in the Prairie Provinces and revised lists, bringing the information up to date, are being prepared.

Three statements dealing with the land situation in Western Canada follow.

DETAILED STATEMENT of Surveyed Areas in Manitoba, Saskatchewan and Alberta January 1, 1922

—	Manitoba	Saskatchewan	Alberta	Total
	Acres	Acres	Acres	Acres
Area under homestead (including military homesteads)	8,404,800	27,634,300	18,300,000	54,339,100
Area under pre-emption, purchased homesteads sales, Half-Breed scrip, bounty grants, special grants, etc.	5,108,200	7,762,900	3,895,100	16,766,200
Area granted to railway companies	3,566,997	15,177,063	13,120,014	31,864,074
Area granted to Hudson's Bay Company	1,196,700	3,183,600	2,175,700	6,556,000
Area of School Land Endowment (1-18 of area surveyed in sections)	1,637,300	3,942,000	3,755,700	9,335,000
Area sold subject to reclamation by drainage		267	32,505	32,772
Area sold under irrigation system		76,832	980,850	1,057,682
*Area under timber berths	908,200	785,600	1,293,900	2,987,700
*Area under grazing leases	132,600	3,069,500	2,933,400	6,135,500
*Area of forest reserves and parks	2,386,700	5,953,700	16,754,000	25,094,400
*Area reserved for forestry purposes (inside surveyed tract)	746,300	1,430,000	1,677,500	3,853,800
*Area of road allowances	976,500	1,467,500	1,287,200	3,731,600
Area of parish and river lots	505,211	84,010	118,564	707,785
Area of Indian Reserves	433,860	1,071,109	1,367,974	2,872,943
Area of Indian Reserves surrendered	87,560	410,297	302,228	800,085
*Area of water-covered lands (inside surveyed tract)	4,260,400	1,911,200	2,302,200	8,473,800
Area now available for entry	5,348,300	5,068,000	15,460,100	25,896,400
Total surveyed area	35,700,028	79,027,878	85,756,935	200,484,841

*Area not available for cultivation.

The Land Situation—Manitoba, Saskatchewan, and Alberta corrected to 1st January, 1922

—	Manitoba	Saskatchewan	Alberta	Total for all three provinces
	Acres	Acres	Acres	Acres
Surveyed area—				
Land	31,439,628	77,116,678	83,454,735	192,011,041
Water	4,260,400	1,911,200	2,302,200	8,473,800
Total	**35,700,028**	**79,027,878**	**85,756,935**	**200,484,811**
Unsurveyed area—				
Land	112,131,070	75,223,642	75,423,925	262,778,637
Water	13,341,200	6,836,480	2,201,540	22,379,220
Total	**125,472,270**	**82,060,122**	**77,625,465**	**285,157,857**
Total area—				
Land	143,570,698	152,340,320	158,878,660	454,789,678
Water	17,601,600	8,747,680	4,503,740	30,853,020
Grand total	**161,172,298**	**161,088,000**	**163,382,400**	**485,642,698**

STATEMENT of Land Sales by Railway Companies having

Year	Hudson's Bay Company		Canadian Pacific Railway Company		Manitoba South-western Colonization Railway Company		Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company	
	Acres	Amount	Acres	Amount	Acres	Amount	Acres	Amount
		$		$		$		$
1893			93,184	295,288	14,164	57,559	1,603	
1894	7,526	48,225	43,155	131,628	6,312	280,003	640	
1895	4,431	23,209	55,453	176,950	5,623	22,330	2,391	
1896	9,299	52,410	66,624	220,360	21,254	88,568	286	
1897	10,784	53,277	135,681	431,095	63,800	634,644	2,524	
1898	62,000	310,000	242,135	757,792	106,473	363,982	22,534	
1899	56,875	274,625	261,832	814,857	58,019	199,558	61,030	178,517
1900	70,196	352,631	379,091	1,152,836	133,507	437,449	18,932	53,974
1901	82,308	399,804	339,985	1,046,665	59,749	214,953	22,266	74,810
1902	269,577	1,412,332	1,362,478	4,440,500	206,411	713,365	39,835	147,365
1903	330,046	1,939,804	2,260,722	8,472,250	250,372	699,210	843,900	1,476,900
1904	144,857	879,910	857,474	3,516,864	29,522	113,303		
1905	139,721	865,905	411,451	2,045,800	80,342	296,936		
1906	236,191	1,863,375	1,012,322	6,015,060	83,418	360,889		
1907 (9 months to March 31)	69,158	742,221	851,083	4,817,682	3,051	22,645	1,353	16,789
1908	21,184	267,215	81,060	727,367	31,982	153,007	5,621	68,869
1909	25,449	288,836	29,331	383,390	10,396	84,845	37,662	380,371
1910	104,382	1,297,454	655,585	10,473,425	14,501	126,950	106,000	964,600
1911	267,038	3,747,768	715,095	10,372,661	20,313	284,859	113,533	1,237,204
1912	42,554	808,943	855,280	12,420,488	18,932	117,497	35,213	495,116
1913	53,581	1,128,806	447,158	6,348,352	2,768	48,639	15,395	255,399
1914	26,292	572,837	263,962	4,242,089	7,626	91,948	1,629	21,546
1915	16,400	306,550	151,262	2,496,872	489	5,508	1,292	19,118
1916	79,310	1,273,144	242,215	3,670,421	4,780	58,808	12,246	180,361
1917	254,041	4,234,244	405,764	6,612,040	12,470	165,245	21,533	331,596
1918	386,394	6,914,947	545,285	11,044,883	25,933	321,005	49,723	783,062
1919	285,561	4,978,950	602,555	10,580,669	5,289	67,214	33,838	527,670
1920	276,629	4,724,941	571,571	11,356,146	4,623	56,760	32,095	474,895
1921	178,301	3,037,369	275,636	5,898,994	1,518	20,058	11,432	160,472
1922	33,595	545,611	101,497	1,732,350	1,519	15,497	1,274	22,315
Total	3,544,580	43,345,343	14,315,926	132,695,724	1,285,156	5,471,134	1,495,780	7,870,949

Government Land Grants, and by the Hudson's Bay Company.

Calgary and Edmonton Railway Company		Canadian Northern Railway Company		Great Northwest Central Railway Company		Total		Average per acre
Acres	Amount	Acres	Amount	Acres	Amount	Acres	Amount	
	$		$		$		$	$ c.
11,260						120,211	352,847	2 93
11,035						68,668	207,856	3 02
46,815						114,713	222,489	1 94
70,553						108,016	361,338	3 34
9,436						222,225	719,016	3 23
15,481						448,623	1,431,774	3 18
24,738	53,335					462,494	1,520,792	3 28
46,653	128,256					648,379	2,125,146	3 27
116,719	352,037					621,027	2,088,269	3 36
323,494	1,033,396					2,201,795	7,746,958	3 56
231,800	909,600	183,736	631,503	128,435	522,490	4,229,011	14,651,757	3 46
129,007	563,507	64,469	313,575	41,858	177,081	1,267,187	5,564,240	4 39
109,191	512,898	231,707	1,221,469	17,593	103,564	990,005	5,046,572	5 09
85,784	480,063	204,966	1,014,351	20,003	137,503	1,642,684	9,871,241	6 01
59,515	346,064	289,576	1,711,109	4,023	41,470	1,237,759	7,697,930	6 02
8,606	75,644	196,946	1,746,504	1,294	13,855	346,693	3,052,461	8 80
6,370	66,508			165	7,935	109,373	2,211,885	11 08
18,323	182,926	285,428	2,783,010	571	6,863	1,184,790	15,835,228	13 36
11,820	116,231	277,414	3,336,797	1,438	27,417	1,406,651	19,122,937	13 59
10,853	154,424	365,926	4,216,578	632	11,373	1,329,390	18,224,419	13 70
4,155	44,212	182,491	2,009,642	1,601	32,105	707,149	9,867,155	13 95
19,575	460,129	182,491	2,009,642			501,575	7,398,191	14 75
23,042	444,018			316	6,956	192,801	3,279,031	17 01
11,689	172,033			4,646	81,182	354,886	5,435,949	15 32
33,821	573,875	17,796	298,938	8,829	141,439	755,154	12,357,377	16 35
53,335	815,628	39,546	732,351	16,021	275,724	1,116,237	20,887,600	18 71
31,774	479,496	65,110	1,261,963	14,530	252,774	1,038,657	18,148,736	17 47
26,953	425,656	86,305	1,685,241	27,981	464,586	1,026,157	19,188,225	18 69
11,681	191,928	69,934	1,455,319	5,128	96,616	553,630	10,860,756	19 61
3,024	51,603	14,163	263,199	167	2,997	155,239	2,833,572	16 96
1,506,502	8,633,467	2,758,004	26,691,191	295,231	2,403,939	25,201,179	227,111,747	9 01

ACCOUNTS

STATEMENT of Gross Cash Receipts from all Sources, During the Fiscal Year ended March 31, 1922, Compared with Receipts for the Previous Fiscal Year.

Source of Revenue	1921–22	1920–21	Increase	Decrease	Net Decrease
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Dominion lands	2,918,529 59	4,086,076 49		1,167,546 90	
School lands	2,335,726 83	4,480,270 67		2,144,543 84	
Ordnance lands	8,446 48	8,887 88		441 40	
Seed grain and relief	372,350 89	773,200 67		400,849 78	
Casual revenue	20,128 63	811,970 45		791,841 82	
Registration fees—Yukon	524 64	448 31	76 33		
Fines and forfeitures	2,912 73	1,139 75	1,772 98		
Sales of railway lands—Special account	8,800 00	27,602 30		18,802 30	
	5,667,419 79	10,189,596 52	1,849 31	4,524,026 04	4,522,176 73

STATEMENT of Cash Receipts on Account of Dominion Lands Revenue for the Fiscal Year Ended March 31, 1922, as Compared with the Receipts for the Previous Fiscal Year.

Particulars	1921-22	1920-21	Increase	Decrease	Net Decrease
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Homestead fees	73,540 00	53,880 00	19,660 00		
Sale fees	170 00	50 00	120 00		
Improvements	55,168 13	69,732 66		14,564 53	
Pre-emption sales under 1908 Act	660,501 11	1,484,277 49		823,776 38	
Purchased homestead sales	36,200 35	93,571 24		57,370 89	
General sales	52,178 91	135,749 20		83,570 29	
Map sales, office fees, etc	23,352 07	16,333 67	7,018 40		
Rentals of land	10,924 49	12,029 05		1,104 56	
Survey fees		31 65		31 65	
D.L.S. Examination fees	170 00	200 00		30 00	
Patent and interchange fees	470 00	320 00	150 00		
Suspense account	10,294 23	3,400 79	6,893 44		
Interim receipt account—Yukon	61 00	578 15		517 15	
Miscellaneous	5,006 18	11,212 29		6,206 11	
Timber dues	683,460 99	705,313 77		21,822 78	
Grazing rental	144,344 67	183,756 97		39,412 30	
Grazing lands improvements	916 70	760 00	156 70		
Hay permits	24,398 99	30,217 62		5,818 63	
Irrigation fees	436 00	399 00	37 00		
Irrigation sales	12,969 52	7,573 68	5,395 84		
Sale of trees, etc.—Forestry Branch	2,843 75	7,269 12		4,425 37	
Fishing permits—Forestry Branch	1,420 00	1,660 00		240 00	
Coal lands	413,913 67	457,065 08		43,151 41	
Mining fees	88,962 73	65,824 73	23,138 00		
Dredging leases	2,538 30	1,443 22	1,095 08		
Hydraulic leases	2,569 00	2,160 00	409 00		
Potash leases	1,353 75	893 80	659 95		
Petroleum leases	488,359 75	620,872 62		132,512 87	
Export tax on gold	30,774 68	31,126 21		351 53	
Free certificates for export of gold	4 50	1 50	3 00		
Stone quarries	7,527 23	9,842 92		2,315 69	
Sand, stone and gravel	1,363 75	2,537 74		1,173 99	
Rent of water-power	3,429 56	3,244 93	184 63		
Amber leases	238 00		238 00		
Quartz rental	1,061 90		1,061 90		
Rocky Mountains park	59,208 63	60,961 23		1,752 60	
Jasper park	7,973 01	5,473 12	2,499 89		
Waterton Lakes park	3,148 12	2,896 13	251 99		
Yoho park	1,544 12	1,206 09	338 03		
Antelope park	1,015 20	409 60	605 60		
Buffalo park	226 85	124 15	102 70		
Elk Island park	80 00	31 50	48 50		
Fort Anne park	45 00	38 00	7 00		
Glacier park	285 38	230 82	54 56		
Moose Mountain buffalo reserve	452 60	35 60	417 00		
Point Pelee park	21 02	1,341 15		1,320 13	
Isle-aux-Noix reserve	215 00		215 00		
Kootenay park	8 75		8 75		
Liquor permits N.W.T.	194 00		194 00		
Traders licenses N.W.T.	1,280 00		1,280 00		
Trappers licenses N.W.T.	1,599 00		1,599 00		
Taxidermist licenses	79 00		79 00		
	2,918,529 59	4,086,076 49	73,921 96	1,241,468 86	1,167,546 90
Refunds	119,079 58	130,750 93		11,671 35	11,671 35
	2,799,450 01	3,955,325 56	73,921 96	1,229,797 51	1,155,875 55

In addition to $52,178.91 on account of general sales, the department received $8,800 from sales of railway lands, which sum as provided by Orders in Council, has been credited to special accounts in the books of the Finance Department.

STATEMENT Showing Receipts on account of Dominion Lands from July 1, 1872, to March 31, 1922

Fiscal Year	Homestead Fees	Pre-emption Fees	Improvements	Sales		Map sales, Office and Registration Fees, etc.	Dominion Lands Surveyors' Examination Fees	Rents, Survey Fees, Miscellaneous, and Suspense Account	Purchased, Homestead Inspection, Cancellation and Sundry Fees	Timber Dues
				Cash	Scrip					
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1872-73	6,960 00			19,170 20						109 25
1873-74	7,310 00			19,834 75				125 50		2,710 55
1874-75	11,510 00			13,666 90		129 00				2,335 25
1875-76	4,680 00			3,478 94	320 00					387 00
1876-77	2,250 00			1,085 86	136,955 16	4 00		100 00	40 00	320 00
1877-78	14,540 00			2,704 86	120,159 54		180 00		290 00	1,620 00
1878-79	17,690 00			4,998 39	210,904 84	81 00	310 00	13 70	410 00	325 00
1879-80	41,255 00	10,241 43		45,708 97	81,685 86	245 40	580 00	183 25	1,780 00	25,121 46
1880-81	20,450 00	10,801 75	269 00	71,170 17	70,828 30	985 40	420 00	37 58		32,028 34
1881-82	54,155 00	39,843 90	1,758 00	1,240,328 27	50,590 84	3,036 45	890 00	58 40		58,753 14
1882-83	73,015 00	54,725 00	7,114 91	516,092 21	33,638 40	3,109 50	890 00	501 77		90,066 46
1883-84	41,580 00	28,810 00	2,596 11	424,863 36	40,919 67	1,289 55	530 00	45,766 53	1,713 45	147,983 40
1884-85	25,645 00	17,100 00	2,328 75	199,275 32	45,875 60	1,621 82	370 00	50,068 57	2,685 00	87,474 99
1885-86	26,110 00	14,371 00	1,101 50	76,140 41	214,657 97	1,330 34	360 00	20,070 00	5,025 00	64,820 31
1886-87	19,614 00	6,887 93	1,971 55	48,175 76	337,640 19	1,171 39	240 00	44,561 66	7,778 40	65,111 74
1887-88	23,691 00	4,830 00	1,918 35	52,238 36	313,522 67	1,660 75	240 00	20,591 41	12,078 53	94,961 55
1888-89	39,460 00	10,550 00	4,128 48	57,513 16	318,238 57	1,410 16	220 00	10,389 57	20,402 50	90,290 00
1889-90	35,920 00	8,580 00	3,250 54	54,896 85	228,744 47	2,099 07	190 00	3,316 23	21,715 00	84,642 95
1890-91	29,164 10		6,302 61	91,664 08	171,425 14	1,854 78	88 00	7,951 05	16,790 00	102,902 71
1891-92	46,994 00		6,472 31	141,651 01	97,822 41	2,147 31	135 00	29,898 49	27,964 00	106,461 35
1892-93	37,689 74		7,113 50	96,171 67	77,231 18	975 20	82 00	18,509 35	22,015 50	105,885 24
1893-94	36,462 26		3,497 76	53,254 71	27,840 96	973 11		15,457 09	14,097 00	81,290 51
1894-95	29,664 88		3,567 90	37,293 71	23,269 62	695 99	40 00	6,271 77	6,566 90	74,079 20
1895-96	18,278 00		3,163 15	46,373 98	46,929 65	610 78	50 00	21,679 31	6,810 50	61,923 47
1896-97	21,179 00		3,737 01	49,335 53	16,929 38	795 05	70 00	16,145 98	8,527 59	68,992 82
1897-98	34,780 00		5,649 63	80,178 64	28,918 14	1,987 40	10 00	11,436 54	15,859 88	119,313 78
1898-99	58,235 00		4,297 62	116,598 35	21,307 58	1,266 05	20 00	69,017 88	20,820 40	155,360 63
1899-1900	72,690 00		4,835 81	103,247 58	88,756 22	1,258 85	190 00	31,154 04	21,688 00	126,345 82
1900-01	79,910 00		5,213 22	40,360 93	326,270 03	3,874 14	165 00	71,966 23	12,874 00	209,399 32
1901-02	144,425 00		8,481 46	66,950 21	169,767 13	5,792 96	370 00	71,973 20	663 00	207,790 90
1902-03	320,409 65		11,829 08	155,537 49	158,452 66	5,911 96	365 00	125,128 66	595 00	470,916 93
1903-04	255,772 36		15,119 47	196,750 15	189,705 08	5,549 13	463 50	81,246 46	1,081 00	397,344 33
1904-05	304,806 25		21,571 25	154,128 04	19,644 59	4,879 13	906 50	144,854 31	1,371 00	266,951 16
1905-06	417,834 25		31,795 19	442,588 69	7,654 57	6,042 34	474 00	141,345 30	1,046 25	292,684 53
1906-07 (9 months)	215,449 55		39,763 63	503,202 44	11,349 89	5,449 06	420 00	60,450 99	685 00	379,476 32
1907-08	301,693 73		71,139 47	656,303 03	92,311 24	7,727 29	600 00	148,914 00	1,283 50	473,608 94
1908-09	389,039 00	141,550 15	70,928 86	951,442 28	20,136 27	7,296 55	1,010 00	75,596 96	9,579 50	269,837 52
1909-10	415,232 00	174,250 00	105,009 07	1,239,037 33	9,973 81	9,135 49	1,500 00	100,257 89	14,028 30	378,010 70

1910-11	445,135 00	156,485 00	143,227 13	1,193,756 04	1,437 84	8,730 01	1,310 00	42,111 92	20,142 85	387,054 96
1911-12	391,703 12	102,070 00	184,825 92	1,967,182 85	3,256 99	11,239 14	1,400 00	44,167 03	14,745 50	400,668 61
1912-13	337,055 00	85,940 00	168,904 42	1,650,491 87	6,157 27	14,483 91	1,040 00	17,866 65	11,380 00	463,738 75
1913-14	317,412 00	61,660 00	187,052 46	1,303,587 54	240 00	16,056 07	1,350 00	40,148 65	8,402 00	378,365 33
1914-15	238,295 00	28,720 00	114,982 17	696,672 23	80 00	14,290 23	970 60	33,234 14	4,776 10	310,934 29
1915-16	170,350 00	22,760 00	112,782 70	1,090,842 36		11,485 83	470 00	19,495 98	3,475 00	378,960 68
1916-17	112,110 20	14,690 00	112,711 33	2,707,203 99	332 61	13,976 95	560 00	21,212 91	2,910 00	429,403 09
1917-18	83,180 00	7,870 00	89,371 59	3,046,091 55	131 47	12,066 22	250 00	26,513 84	2,200 00	482,006 25
1918-19	42,190 00		49,225 97	2,192,860 81	323 41	11,039 54	100 00	77,291 91	360 00	408,728 28
1919-20	67,460 00		78,913 74	2,799,605 09	80 00	17,134 19	255 00	28,535 19	340 00	589,780 21
1920-21	53,880 00		70,492 66	1,721,171 61		16,333 67	200 00	23,149 23	370 00	705,313 77
1921-22	73,540 00		56,084 83	761,849 89		23,352 07	170 00	29,358 90	640 00	683,490 99
Totals	6,027,854 09	1,002,736 16	1,824,500 11	29,174 819 32	3,822,417 25	262,593 23	20,574 60	1,849,125 05	344,905 56	10,816,065 78

STATEMENT Showing Receipts on Account of Dominion Lands from July 1, 1872, to March 31, 1922—*Concluded.*

Fiscal Year	Grazing Lands		Hay, Coal, Mining Fees, Stone Quarries, Export Tax on Gold, etc.		Canadian National Parks	Colonization Lands		Gross Revenue	Refunds	Net Revenue
	Cash	Scrip	Cash	Scrip		Cash	Scrip			
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1872-73								26,239 45		26,239 45
1873-74								29,980 80		29,980 80
1874-75								27,641 15		27,641 15
1875-76								8,865 94		8,865 94
1876-77								140,755 02		140,755 02
1877-78								139,584 40		139,584 40
1878-79								234,732 93		234,732 93
1879-80								206,801 37	4,636 08	202,165 29
1880-81								206,990 54	5,038 22	201,952 32
1881-82	2,245 00		40 00			354,036 17		1,805,734 87	10,687 55	1,795,047 32
1882-83	22,844 43		913 91			248,492 01		1,051,403 60	8,746 05	1,042,657 55
1883-84	11,370 60		640 90			253,713 40		1,001,776 67	9,220 50	992,556 17
1884-85	17,089 75		815 63			1,214 22		451,564 65	12,070 85	439,493 80
1885-86	29,562 51	3,131 08	1,284 83					457,973 95	63,389 12	394,584 83
1886-87	14,242 77	39,487 67	1,570 40	80 00				588,532 80	19,543 16	568,989 64
1887-88	5,922 47	23,023 28	2,273 73	80 00	2,951 58		10,000 00	569,986 68	6,277 66	563,709 02
1888-89	2,207 69	16,802 63	3,946 55		2,528 73		16,000 00	594,088 04	5,226 23	588,861 81
1889-90	1,305 57	9,021 63	9,242 08		1,094 37			464,018 76	8,209 74	455,809 02
1890-91	3,079 55	16,193 77	8,628 44	160 00	2,397 35	5 28	4,460 50	463,068 26	7,195 27	455,872 99
1891-92	3,726 80	17,222 60	5,616 85		3,648 45			459,760 58	15,291 39	444,469 19
1892-93	6,380 80	11,542 39	6,266 13		4,983 23			394,825 93	18,314 97	376,510 96
1893-94	5,740 79	7,687 86	6,243 15		2,523 92			250,069 12	4,544 01	245,525 11
1894-95	5,353 72	8,628 00	5,229 54		2,321 87			202,983 10	4,365 99	198,617 11
1895-96	7,071 86	6,255 90	5,813 51		2,734 82			227,694 93	8,368 79	219,326 14
1896-97	4,715 01	2,500 00	11,794 18		2,132 11			206,853 57	15,010 54	191,843 03
1897-98	4,728 58	510 39	700,323 01		3,045 65			1,009,741 63	4,678 55	1,005,063 08
1898-99	5,245 88		1,129,164 77		2,994 16			1,584,328 32	32,296 39	1,552,031 93
1899-1900	8,382 86	4,083 30	1,038,362 92	20 00	2,727 60			1,503,743 00	23,062 28	1,480,680 72
1900-01	4,726 28	14,671 99	1,100,660 64	20 00	4,047 31			1,874,159 09	18,368 85	1,855,790 24
1901-02	7,292 46	8,409 27	737,902 53		*2,861 13			1,432,679 25	27,165 55	1,405,513 70
1902-03	13,913 33	15,041 33	607,722 05		*5,063 69			1,890,886 83	21,519 84	1,869,366 99
1903-04	19,790 27	13,921 29	495,883 18		*9,198 48			1,681,824 70	36,721 48	1,645,102 95
1904-05	36,145 32	5,237 36	364,927 59		*14,059 55			1,339,382 35	25,786 90	1,313,595 15
1905-06	51,583 89	80 00	297,302 44		18,883 83			1,709,315 28	33,418 36	1,675,896 92
1906-07 (9 months)	43,711 91	400 00	214,257 10		*15,887 42			1,490,503 31	35,117 75	1,455,385 83
1907-08	43,211 78	4,048 01	266,415 31		27,232 87			2,094,579 17	115,080 04	1,979,499 13
1908-09	53,312 79	3,257 84	253,339 17		31,321 20			2,277,678 09	102,463 78	2,175,214 31
1909-10	67,434 29	5,081 47	460,231 39		43,264 36			3,022,446 13	121,431 15	2,901,014 98
1910-11	60,702 80	2,356 00	774,569 27		69,054 59			3,306,073 41	198,689 47	3,107,383 94
1911-12	69,519 41	1,520 00	729,240 42		56,497 74			3,978,036 73	197,631 35	3,780,405 38

1912-13	79,412 76		779,695 53	1,587 32	37,448 72			3,655,202 20	246,105 26	3,409,096 94
1913-14	84,926 15	320 00	865 499 12		48,800 33			3,313,819 65	277,309 33	3,036,510 32
1914-15	101,710 58	400 00	1,594,905 42		37,895 97			3,177,866 73	317,764 75	2,860,101 98
1915-16	118,955 02	160 00	476,408 82		37,493 53			2,443,639 92	143,942 57	2,299,697 35
1916-17	128,341 50		600,934 13		45,851 45			4,190,238 16	134,243 14	4,055,995 02
1917-18	125,300 69	240 00	630,427 95		52,160 52			4,557,810 08	113,680 44	4,444,129 64
1918-19	148,179 55		630,975 74		55,006 72			3,616,281 93	76,031 02	3,540,250 91
1919-20	183,661 96		896,413 40		76,742 07			4,738,920 85	116,249 03	4,622,671 82
1920-21	183,756 97		1,234,558 49		76,850 09			4,086,076 49	130,750 93	3,955,325 56
1921-22	144,344 67		1,071,395 56		74,302 68			2,918,529 59	119,079 58	2,799,450 01
Totals	1,931,151 02	241,235 06	18,021,835 78	1,947 32	876,008 09	857,461 08	30,460 50	77,105,690 00	2,894,723 91	74,210,966 09

* Including scrip.

STATEMENT Showing Yearly the Gross Revenue (in cash only) Received from all sources from July 1, 1902, to March 31, 1922.

Fiscal Year	Dominion Lands	School Lands	Seed Grain	Ordnance Lands	Fines and Forfeitures	Registration Fees	Casual Revenue	Chinese Immigration Revenue	Total
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1902-03	1,716,597 20	392,206 93	28,789 97	17,612 79	5,220 88	81,404 18	2,230 26		2,244,061 21
1903-04	1,478,106 33	233,769 62	26,122 30	30,494 34	5,911 92	109,233 73	3,402 94		1,887,041 18
1904-05	1,314,485 40	332,914 48	16,471 34	10,346 90	10,018 49	123,082 86	4,258 14		1,811,577 61
1905-06	1,701,580 71	608,960 79	12,577 29	10,893 17	3,304 77	180,310 73	8,496 09	....	2,526,123 55
1906-07 (9 months)	1,478,749 51	724,353 73	10,850 06	6,663 90	21 00	46,124 20	11,785 81	.. ...	2,278,548 21
1907-08	1,998,219 92	708 045 83	12,899 84	8,674 95	1,650 00	2,256 65	20,069 03	.. ....	2,751,816 22
1908-09	2,254,283 98	687,422 74	53,590 86	205,749 96	281 00	1,352 13	26,224 29	.	3,228,904 96
1909-10	3,007,390 82	1,292,259 95	175,152 72	189,902 48	211 00	1,471 49	42,625 96	.	4,709,014 42
1910-11	3,302,279 57	1,614,733 93	153,351 14	6,009 34	4,052 22	1,378 19	11,336 06		5,093,140 45
1911-12	3,973,259 74	1,594,533 96	119,634 13	11,566 16	10,510 48	1,066 05	32,824 65	971,339 00	6,714,734 47
	22,224,953 18	8,189,201 96	609,439 65	497,914 29	41,181 76	547,680 21	163,253 23	971,339 00	33,244,963 28
1912-13	3,647,457 61	1,621,508 11	171,342 87	60,607 80	7,150 35	1,211 25	22,873 55	3,549,242 00	9,081,423 54
1913-14	3,313,259 65	1,215,822 37	176,736 89	5,805 98	7,888 50	966 50	27,884 47	2,641,593 00	7,392,957 36
1914-15	3,177,386 73	943,717 00	68,263 56	4,116 64	5,828 00	969 85	11,738 10	588,124 00	4,800,443 88
1915-16	2,443,479 92	934,965 37	2,525,528 50	5,997 98	3,075 21	908 15	28,002 62	19,389 00	5,961,346 75
1916-17	4,189,905 55	1,699,370 06	3,652,729 05	5,553 26	2,184 72	796 85	15,618 26	140,487 00	9,706,644 75
1917-18	4,557,438 61	2,836,216 40	2,613,708 67	7,929 75	3,686 00	562 25	9,074 15	336,757 00	10,365,372 83
1918-19	3,615,958 52	5,087,875 81	1,378,275 76	4,819 27	35 00	789 22	12,381 71		10,100,135 29
1919-20	4,738,840 85	3,900,091 75	1,155,354 64	9,840 33	70 00	430 78	22,837 87	.	9,827,466 22
1920-21	4,086,076 49	4,480,270 67	773,200 67	8,887 88	1,139 75	448 31	811,970 45		10,161,994 22
1921-22	2,918,529 59	2,335,726 83	372,350 89	8,446 48	2,912 73	524 64	20,128 63		5,658,619 79
	36,688,333 52	25,055,564 37	12,887,491 50	122,305 37	33,970 26	7,637 80	982,509 81	7,278,592 00	83,056,404 63
Increase	14,463,380 34	16,866,362 41	12,278,051 85				819,256 58	6,307,253 00	49,811,441 35
Decrease				375,608 92	7,211 50	540,042 41			

STATEMENT of Revenue Collected within Canadian National Parks for the Fiscal Year Ended March 31, 1922, as Compared with the Previous Year.

Particulars	Fiscal Year		Increase	Decrease	Net Increase
	1921-22	1920-21			
Rocky Mountains Park	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Rent	9,497 21	11,784 15		2,286 94	
Sulphur water rates	910 50	801 38	109 12		
Timber dues	654 55	1,131 98		477 43	
Cold water rates	8,204 62	8,580 08		375 46	
Sewer rates	2,961 92	3,065 21		103 29	
Transfer fees	208 00	207 00	1 00		
Cave and basin bathing tickets	10,403 35	10,578 20		174 85	
Livery licenses	844 00	307 00	537 00		
Pool, billiard and bowling licenses	236 00	260 00		24 00	
Boat licenses	102 50	103 00		0 50	
Butcher licenses	70 00	90 00		20 00	
Grazing rental	755 00	521 00	234 00		
Hot Springs bathing tickets	5,831 55	6,886 35		1,054 80	
Telephone rent	5,166 53	4,044 74	1,121 79		
Fines		896 00		896 00	
Peddlers' licenses	144 00	70 00	74 00		
Guides' licenses	60 00	67 50		7 50	
Camping permits	360 00	233 00	127 00		
Cemetery lots	92 00	43 00	49 00		
Tea room licenses	60 00	220 00		160 00	
Sand and gravel	48 85	20 25	28 60		
Dog licenses	506 00	357 00	149 00		
Automobile licenses	6,431 00	5,887 00	544 00		
Scales	32 50	32 00	0 50		
Ice	16 25	6 25	10 00		
Sale of lime	16 00	15 25	0 75		
Theatre licenses	35 00	22 00	13 00		
Building permits	51 00	54 00		3 00	
Garden and dairy licenses	17 00		17 00		
Gum machines	20 00	48 00		28 00	
Golf coupons	3,471 50	3,643 00		171 50	
Miscellaneous	59 80	735 34		675 54	
Hay dues		0 55		0 55	
Chauffeurs' licenses	27 00	171 00		144 00	
Restaurant licenses	1,270 00	80 00	1,190 00		
Electricians licenses	9 00		9 00		
Stone quarries	1 00		1 00		
Improvements	635 00		635 00		Decrease
	59,208 63	60,961 23	4,850 76	6,603 36	1,752 60
Waterton Lakes Park					
Rent	801 82	371 73	430 09		
Camping permits	253 00	170 00	83 00		
Timber dues	129 05	110 00	19 05		
Fines	37 00	38 00		1 00	
Guides' licenses		10 00		10 00	
Grazing rental	1,763 00	1,912 00		149 00	
Hay dues	2 50	4 00		1 50	
Drivers' and livery licenses		44 00		44 00	
Boat licenses	74 00	68 00	6 00		
Transfer fees		10 00		10 00	
Building permits	7 00	4 00	3 00		
Tea room licenses		10 00		10 00	
Theatre license	10 00		10 00		
Dog licenses	3 00	9 00		6 00	
Restaurant licenses	30 00	10 00	20 00		
Impounding cattle	33 75	125 40		91 65	
Peddlers' licenses	4 00		4 00		
	3,148 12	2,896 13	575 14	323 15	251 99

STATEMENT of Revenue Collected within Canadian National Parks for the Fiscal Year Ended March 31, 1922, as Compared with the Previous Year—*Continued*

Particulars	Fiscal Year 1921-22	Fiscal Year 1920-21	Increase	Decrease	Net Increase
Jasper Park	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Rent	2,144 79	3,018 23		873 44	
Timber dues	4,342 72	84 33	4,258 39		
Building permits	76 00	35 00	41 00		
Boat licenses	5 00	20 00		15 00	
Hay dues	3 60	5 70		2 10	
Peddler's licenses	46 00	34 00	12 00		
Fines		192 00		192 00	
Grazing reatal	255 00	368 00		113 00	
Guides' licenses	47 50	54 40		6 90	
Drivers' and livery licenses	166 00	313 00		147 00	
Camping permits	92 00	26 00	66 00		
Pool, billiard and bowling licenses	170 00	210 00		40 00	
Dog licenses	189 00	208 00		19 00	
Restaurant licenses	90 00	120 00		30 00	
Butcher licenses	30 00	50 00		20 00	
Telephone rent	30 00	55 00		25 00	
Cold water rates	48 00	33 00	15 00		
Miscellaneous	83 95	109 76		25 81	
Theatre licenses	22 00	33 00		11 00	
Transfer fees	31 00	12 00	19 00		
Sand	6 00	8 70		2 70	
Cemetery lots	18 00	33 00		15 00	
Coal leases		282 00		282 00	
Chauffeurs' licenses	10 00	1 00	9 00		
Garden and dairy licenses	4 00	80 00		76 00	
Auto permits	45 00	50 00		5 00	
Cat taxes	12 00	37 00		25 00	
Ice	5 00		5 00		
Impounding fees	0 45		0 45		
	7,973 01	5,473 12	4,425 84	1,925 95	2,499 89
Yoho Park					
Timber dues	319 92	172 50	147 42		
Rent	530 20	517 39	12 81		
Transfer fees	20 00	8 00	12 00		
Camping permits	13 00	24 00		11 00	
Cemetery lots		3 00		3 00	
Grazing rental	70 00	52 00	18 00		
Fines		5 00		5 00	
Guides' licenses	25 00	15 00	10 00		
Miscellaneous	2 00	1 20	0 80		
Pool, billiards and bowling licenses	30 00	30 00			
Restaurant licenses	50 00	30 00	20 00		
Butchers' licenses	10 00	10 00			
Dog licenses	116 00	126 00		10 00	
Boat licenses	12 00	6 00	6 00		
Drivers' and livery licenses	171 00	96 00	75 00		
Auto permits	133 75	110 00	23 75		
Building permits	35 25		35 25		
Peddlers' licenses	6 00		6 00		
	1,544 12	1,206 09	367 03	29 00	338 03
Buffalo Park					
Timber dues	96 25	16 75	79 50		
Hay dues	32 50	25 40	7 10		
Grazing rental	28 00	72 00		44 00	
Auto permits	15 00	10 00	5 00		
Miscellaneous	39 85		39 85		
Motor license	5 00		5 00		
Ice	10 25		10 25		
	226 85	124 15	146 70	44 00	102 70

STATEMENT of Revenue Collected within Canadian National Parks for the Fiscal Year Ended March 31, 1922, as Compared with the Previous Year—*Concluded*

Particulars	Fiscal Year		Increase	Decrease	Net Increase
	1921-22	1920-21			
Glacier Park	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Rent	53 88	33 07	20 81		
Camping permits	9 00	2 00	7 00		
Grazing rental	30 00	35 00		5 00	
Timber dues	4 50	2 25	2 25		
Dog licenses	30 00	27 00	3 00		
Restaurant licenses	20 00	20 00			
Guides' licenses		2 50		2 50	
Drivers' and livery licenses	98 00	106 00		8 00	
Boat licenses		3 00		3 00	
Auto licenses	40 00		40 00		
	285 38	230 82	73 06	18 50	54 56
Elk Island Park					
Camping permits	11 00	3 00	8 00		
Boat licenses	44 00	26 00	18 00		
Building permits	20 00	2 00	18 00		
Miscellaneous		0·50		0 50	
Auto license	5 00		5 00		
	80 00	31 50	49 00	0 50	48 50
Antelope Park					
Grazing rental	1,015 20	409 60	605 60		605 60
Fort Anne Park					
Hay dues	45 00	38 00	7 00		7 00
Isle Aux Noix Reserve					
Hay dues	215 00		215 00		215 00
Kootenay Park					
Timber dues	8 75		8 75		8 75
Moose Mountain Buffalo Reserve					
Grazing rental	452 60	35 60	417 00		417 00
Pt. Pelee Park					
Rent	12 52	1,341 15		1,328 63	
Miscellaneous	8 50		8 50		Decrease
	21 02	1,341 15	8 50	1,328 63	1,320 13
Miscellaneous					Decrease
Taxidermists' fees, etc	79 00	4,102 70		4,023 70	4,023 70
					Decrease
Totals	74,302 68	76,850 09	11,749 38	14,296 79	2,547 41

PART I

DOMINION LANDS

REPORT OF THE COMMISSIONER, J. W. GREENWAY

Applications for Patent—	1920-21	1921-22
Number examined	77,313	72,972
New applications	16,041	9,908
Applications accepted and notifications issued	13,080	9,607
Certificates of recommendation sent out	5,221	2,636

Report of the Chief Inspector of Dominion Lands Agencies, H. G. Cuttle

In referring to the general services rendered to the public in the various land offices in the West, I am pleased to be able to report that it has been of a very satisfactory nature, as will be shown by the detailed reports of the agencies, subagencies and homestead appraisers as submitted by Mr. O. Neff, Inspector of Dominion land agencies in Manitoba and Saskatchewan, and Mr. J. W. Martin, Inspector in Alberta and British Columbia.

During the past year I have visited most of the land agencies, going fully into all matters which would tend to improve the service to the public, and found the general condition to be satisfactory. On my visits I interviewed a number of the homestead appraisers, discussing the better routing of inspections in order to speed up the work generally, and save mileage, and am pleased to report a marked improvement in their general work. There has also been a great number of special investigations in connection with both Dominion lands and seed grain matters, a number of which have been held under oath authorized under special order in council. There has also been considerable work done in connection with the distributions of seed grain, also the listing of accounts and the collection of outstanding indebtedness.

Report of the Inspector of Dominion Lands Agencies for Manitoba and Saskatchewan, O. Neff

AGENCIES

Agency	Homestead entries granted	Land Sales	Applications for patent received	Land entries cancelled	Permits Issued	
		Ordinary and school lands			Timber	Hay
Battleford	343	22	280	640	409	622
Dauphin	611	41	514	613	293	704
Moose Jaw	334	13	883	552	3	1,070
Prince Albert	1,227	24	604	830	669	1,504
Saskatoon	547	20	606	533	64	747
Swift Current	287	15	1,019	766	91	363
Winnipeg	877	51	1,183	1,062		
The Pas*		Mining locations (813)		Assessment payments (19)		
Total	4,226	186	5,089	4,996	1,529	5,010
Compared with 1920-21	2,394	254	8,836	5,041	2,042	7,973
Compared with 1919-20	3,292	285	14,352	4,526	4,287	8,669

*The Pas office is that of a mining recorder who is also subagent.

SUBAGENCIES

Name of subagent	Subagency	Applications for						
		Homesteads	Grazing leases	Grazing permits	Patents	Inspections	Timber Permits	Hay permits
C. J. Lee	Assiniboia	83	9	18	169	64	.....	23
P. Goulding	Canwood	118	4	11	58	37	35	68
J. Cusack	Empress	9	2	1	42	26	.....	5
W. H. Holland	Lloydminster	40	19	30	25	23	38	36
C. H. Stockdale	Maple Creek	64	28	44	132	55	22	26
J. T. McCordic	Meadow Lake	22	11	4	18	19	29	61
W. J. Young	Melfort	176	1	24	79	77	13	24
J. Deans	North Battleford	79	41	32	42	57	24	118
D. McMurphy	Preeceville	237	.....	.....	113	109	2	67
A. C. Reed	Turtleford	80	8	3	57	58	12	14
Wm. Buxton	Tisdale	240	4	2	153	125	40	83
W. B. McLellan	The Pas	14	7	.....	1	1	58	22
M. Langstaff	Wadena	221	.....	2	87	127	.....	1
Total		1,383	134	171	976	778	273	548
Compared with 1920-21		747	157	200	2,354	568	328	1,064
Compared with 1919-20		836	350	.....	4,317	749	284	1,316

HOMESTEAD INSPECTORS, PRINCIPAL WORK PERFORMED BY

Name	Headquarters	Land inspections made	Applications for patent	Miles travelled	
				Wagon	Rail
D. Anderson	Battleford	271	56	6,727	946
N. F. Leach	"	294	102	5,560	4,145
G. L. Speers	Dauphin	387	171	4,414	6,605
T. C. Martin	"	412	167	8,229	4,705
Robt. Hunt	"	521	141	6,322	284
W. J. Morrison	Prince Albert	216	65	2,958	2,640
S. Taylor	"	245	10	5,365	688
E. H. E. Webb-Bowen	"	379	61	2,976	2,427
W. W. Whelan	"	257	38	4,387	1,706
C. E. Barr	Moose Jaw	248	13	7,100	1,696
W. Erratt	"	504	14	10,118	1,413
A. Hamilton	"	276	110	4,883	14,315
E. J. Hober	"	478	.....	9,571	5,079
F. G. Arnold	"	29	142	768	7,445
A. E. Mosses	Saskatoon	340	149	8,346	1,134
A. E. Henke	"	250	47	5,844	2,556
J. A. Balfour	"	.....	.....	.....	.....
A. Smyth	"	267	45	5,932	5,703
J. DeBalinhard	"	505	60	6,981	2,552
L. Lepine	Winnipeg	283	42	2,484	4,847
W. Lagimodière	"	533	119	3,847	3,735
H. W. Mabb	"	457	129	4,004	1,098
W. D. Gillespie	"	690	234	5,168	2,500
Geo. McGowan	"	278	158	2,704	3,285
A. C. Douglas	"	54	18	598	1,389
W. Shields	Swift Current	447	178	7,644	
J. Furnis	"	372	26	6,629	42
P. McLaren	"	275	79	7,824	1,360
J. A. McDonald	"	435	131	6,671	1,699
Total		9,703	2,505	154,054	85,994
Compared with 1920-21		11,049	2,746	165,791	85,647
Compared with 1919-20		10,222	3,050	149,521	85,101

Report of the Inspector of Dominion Lands Agencies for Alberta and British Columbia, J. W. Martin

AGENCIES

Agency	Homestead entries granted	Soldier grants	Land sales	Applications for patent received	Land entries cancelled	Permits issued	
			Ordinary and school lands			Timber	Hay
Calgary	341	85	16	716	531	474	578
Edmonton	1,668	308	60	1,348	2,089	1,529	1,467
Grande Prairie	312	96	16	384	362	397	237
Kamloops	113	15	14	101	63	363	42
Lethbridge	149	27	5	409	264	454	85
New Westminster	41	48	5	40	36	.....	
Peace River	461	109	21	279	681	500	388
Revelstoke	49	7	.....	22	26	95	
Total	3,134	695	137	3,299	4,052	3,812	2,797
1920-21	2,994	1,232	249	6,947	4,056	4,155	3,830

SUBAGENCIES

Name of Subagent	Subagency	Period	Applications for					
			Homesteads	Soldier grants	Patent	Inspections	Timber permits	Hay permits
Rennison, Mrs. G.M.	Athabasca	.....	59	6	43	38	67	103
Dodds, Geo. E.	Durlingville	.....	91	7	17	60	72	75
Requier, E. E.	Donnelly	.....	36	6	60	31	56	2
Cusack, J.	Empress	.....	36	10	73	47	4	4
Jackson, W.	Entwistle	.....	49	4	50	19	6	26
Glover, F.	Edson	.....	51	5	31	14	9	16
Manning, Jos.	McMurray	.....	1	.....	.....	.....	.....	2
Barber, J. C.	Ft. St. John	11 months	37	7	2	16	43	7
Edgecombe, H. W.	Ft. Vermilion	11 "	52	10	20	9	.....	70
Reynolds, H.	High Prairie	.....	56	9	33	14	15	54
Holland, W. H.	Lloydminster	.....	25	8	19	8	9	22
Hamel, P. D.	Lac la Biche	.....	70	4	37	30	25	52
Robinson, A. W.	Medicine Hat	.....	58	10	137	46	1	12
Agar, Norval	Provost	.....	37	5	69	46	4	26
Jamieson, Th.	Pouce Coupé	11 months	72	20	64	36	15	24
Hankinson, R. T.	Rocky Mtn. Hse.	.....	81	12	49	25	25	33
Row, Cuthbert	Red Deer	.....	23	3	14	16	24	6
Lacey, Jno	Salmoa Arm	.....	38	.....	10	25	.....	
Gray, W. B.	Stettler	.....	31	5	73	20	.....	2
Fildes, J. M.	Spirit River	.....	42	13	69	35	50	51
LaPlante, J. R.	St. Lina	.....	126	12	51	52	21	38
Racicot, B.	St. Paul des Métis	6 months	37	3	14	15	23	
Sutton, W. E.	Vermilion	.....	44	1	18	59	3	6
Wood, Wm. J.	Westlock	.....	120	23	104	69	59	41
Todd, H. E.	Wetaskiwin	Closed	40	1	13	19	2	17
Torgerson, J. S.	Whitecourt	.....	33	3	12	19	13	8
Rayment, Mary	Youngstown	.....	63	9	99	62	.....	46
Wenham, M.	Yeoford	.....	78	2	33	24	12	24
Totals	.....	.....	1,486	198	1,214	854	558	767
1920-21	.....	.....	1,203	389	2,738	681	542	1,490

HOMESTEAD INSPECTORS, PRINCIPAL WORK PERFORMED BY

Name	Headquarters	Land Inspections made	Applications for patent taken	Miles travelled	
				Wagon	Rail
Benzie, J. M	Kamloops	323	52	4,735	3,095
Cook, H	Revelstoke	102	12	469	4,733
Cunningham, T. J	Edmonton	271	53	5,615	4,617
Doze, I. S	Edmonton	3 5	44	4,117	1,118
Fleming, G. W	Calgary	178	165	4,284	3,421
Griffin, A. H	Edmonton	485	18	3,822	3,704
Hagen, S. C	Edmonton	437	54	5,544	1,878
Horne, J. A	Edmonton	433	33	5,894	3,228
Key, A. E	Peace River	109	9	1,516	3,700
Kembry, R. A	Calgary	293	49	11,030	3,592
Magee, W. D	New Westminster	150		1,082	2,125
Mayberry, W. J	Lethbridge	413	69	8,265	1,941
McCowan, H. S	Edmonton	492	32	4,825	772
McConnochie, A	Edmonton	288	42	4,190	3,145
McMullen, J. E	Peace River	273	10	4,077	2,106
Newton, T. M	Grande Prairie	165	21	6,724	
Nurcombe, J	Edmonton	350	30	4,009	3,920
Smith, L. T	Grande Prairie	216	18	6,578	180
Tempany, W	Calgary	628	27	12,397	1,476
Taylor, P. E	Edmonton	211	12	2,300	1,392
Wilcox, D. E	Lethbridge	330	95	6,318	546
Woodlock, P. A	Calgary	405	71	11,208	3,890
Wynne, A. E	Edmonton	356	54	8,096	1,086
Totals		7,293	970	127,095	55,665
1920-21		7,250	816	109,178	55,155

REPORT OF THE AGENT OF DOMINION LANDS, D. J. ROSE, BATTLEFORD, SASKATCHEWAN

	Number	Revenue	Total
Land Patent Branch—			
Homestead fees	344	$ 3,440 00	
Soldier grants	84	.....	
Improvements	57	2,277 25	
Land sales (cash)	21	1,091 39	
Pre-emption payments	45	12,829 04	
Purchased homestead payments	13	2,719 97	
Searches, map sales, office fees, etc	209	82 25	
Applications for patent	280	.....	
Applications for Inspection	341	.....	
Entries cancelled	640	.....	
Sundries	6	92 75	
Total			$ 22,532 65
Timber and Grazing Branch—			
Timber permits	286	$ 2,157 71	
Timber seizures	15	376 55	
Hay permits	459	1,875 25	
Grazing rentals (cash)	420	2,249 38	
Grazing rentals (scrip)	5	9 00	
Total			$ 6,667 89
Forestry Branch—			
Permit fees and rental	193	$ 515 45	
Grazing rent, etc	125	2,722 00	
Hay dues, etc	35	440 00	
Total			$ 3,677 45
Reclamation Service—			
Sales	Sale	$ 44 05	
Total			$ 44 05
Mining Lands and Yukon Branch—			
Mining fees	26	$ 180 00	
Rental	2	140 49	
Total			$ 320 49

REPORT OF THE AGENT OF DOMINION LANDS, D. J. ROSE, BATTLEFORD, SASKATCHEWAN—*Con.*

	Number	Revenue	Total
School Lands Branch—			
Timber permits	12	$ 52 50	
Hay permits	289	1,064 75	
Grazing rentals	423	7,653 02	
Cultivation permits	2	78 50	
Total			$ 8,848 77
Miscellaneous—			
Seed grain and provision payments	65	$ 5,534 14	
Sundries	1	2 75	
Total			$ 5,536 89
Grand total			$ 47,268 19

REPORT OF THE AGENT OF DOMINION LANDS, W. E. TALBOT, CALGARY, ALBERTA

	Number	Revenue	Total
Land Patents Branch—			
Soldier grants	85	.....	
Homestead fees	341	$ 3,410 00	
Improvements	88	4,889 03	
Land sales	16	2,201 84	
Pre-emption payments	443	170,136 87	
Purchased homestead payments	29	5,751 55	
Searches, etc.	401	33 65	
Applications for patent	716	.....	
Applications for cancellation	393	.....	
Entries cancelled	531	.....	
Total			$186,422 94
Timber and Grazing Branch—			
Ground rent	45	$ 7,933 71	
Royalty on sales	30	15,698 71	
Timber permits	171	7,038 34	
Timber seizures	14	369 34	
Hay permits	223	1,127 25	
Grazing rentals	578	6,787 50	
Sundries	11	18 00	
Total			$ 38,972 85
Forestry Branch—			
Permit fees and rental	289	$ 16,879 94	
Seizures	2	569 17	
Grazing rent	237	8,368 60	
Hay dues	13	79 50	
Total			$ 25,897 21
Reclamation Service—			
Reservoir rental	1	$ 121 30	
Total			$ 121 30
Mining Lands and Yukon Branch—			
Mining fees (quartz and placer)	569	$ 4,292 00	
Rental (coal)	347	46,956 64	
Royalty	268	63,817 93	
Petroleum and natural gas	407	38,565 52	
Domestic coal permits	1	5 00	
Alkali	2	432 50	
Dredging	2	35 00	
Total			$154,104 59
School Lands Branch—			
General sales	19	$ 6,945 49	
Timber permits	8	198 85	
Hay payments	342	1,669 61	
Grazing rentals	1,155	24,687 27	
Coal rentals and fees	48	3,847 89	
Coal royalty	28	2,912 12	
Petroleum and natural gas	47	2,754 05	
Cultivation permit	1	14 08	
Gravel fees	1	25 00	
Total			$ 43,054 36
Miscellaneous—			
Seed grain and provision payments	172	$ 35,018 91	
Total			$ 35,018 91
Grand total			$483,592 16

REPORT OF THE AGENT OF DOMINION LANDS, E. WIDMEYER, DAUPHIN, MANITOBA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	611	$ 6,090 00	
Soldier grants	212	.....	
Improvements	58	2,126 80	
Land sales (cash)	41	1,392 77	
Search	1,523	660 75	
Applications for patent	504	.....	
Applications for inspection	589	.....	
Entries cancelled	593	.....	
Total			$ 10,270 32
Timber and Grazing Branch—			
Timber permits	316	$ 2,553 32	
Timber seizures	25	670 18	
Hay permits	444	1,578 73	
Grazing rentals	44	654 89	
Total			$ 5,457 12
Forestry Branch—			
Timber permits	1,226	$ 7,934 83	
Permit fees and rentals	39	186 00	
Seizures	52	838 14	
Grazing rentals	147	1,504 45	
Hay dues	271	1,260 75	
Total			$ 11,724 17
Mining Lands and Yukon Branch—			
Fees	12	$ 54 00	
Petroleum and gas	174	12,322 07	
Coal permits	2	17 00	
Total			$ 12,393 07
School Lands Branch—			
General sales	5	$ 807 93	
Timber permits	...	.....	
Hay permits	262	891 00	
Grazing rentals	72	932 73	
Cultivation permits	2	23 00	
Petroleum and gas	3	66 00	
Total			$ 2,720 66
Miscellaneous—			
Seed grain payments	10	$ 308 00	
Total			$ 308 00
Grand total			$ 42,873 34

REPORT OF THE AGENT OF DOMINION LANDS, A. NORQUAY, EDMONTON, ALBERTA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	1,668	$ 16,640 00	
Soldier grants	308	.....	
Improvements	256	8,658 10	
Land sales (cash)	60	3,752 13	
Pre-emption payments	5	803 45	
Searches	63	21 60	
Applications for patent	6,482	.....	
Applications for inspection	1,017	.....	
Entries cancelled	2,089	.....	
Sundries	...	30 00	
Total			$ 29,905 28
Timber and Grazing Lands Branch—			
Ground rent	44	$ 8,148 51	
Royalty on sales	49	16,459 07	
Timber permits	1,418	62,699 69	
Timber seizures	125	7,020 86	
Hay permits	977	3,005 10	
Grazing rentals (cash)	304	1,361 37	
Sundries	146	11,558 67	
Total			$110,253 27

REPORT OF THE AGENT OF DOMINION LANDS, A. NORQUAY, EDMONTON, ALBERTA—*Con.*

	Number	Revenue	Total
Forestry Branch—			
Timber dues	38	$ 21,788 91	
Permit fees and rental	53	63 25	
Seizures	38	110 05	
Grazing rent, etc	52	798 01	
Hay dues	20	155 25	
Total			$ 23,215 47
Reclamation Service—			
Sales	9	$ 631 92	
Total			$ 631 92
Mining Lands and Yukon Branch—			
Mining fees	84	$ 543 00	
Rental	91	38,370 59	
Royalty	97	57,891 83	
Coal permits	16	6,786 00	
Sundries	615	49,476 70	
Total			$153,068 12
School Lands Branch—			
General sales	2	$ 1,228 15	
Timber permits	60	3,817 74	
Hay permits	475	1,121 95	
Grazing rentals	493	8,179 77	
Mining fees	1	5 00	
Coal rentals	11	836 15	
Coal royalty	2	557 93	
Petroleum	1	10 00	
Sundries	29	3,055 70	
Total			$ 18,812 39
Miscellaneous—			
Seed grain and provision payments	147	$ 7,488 38	
Sundries	7	752 13	
Total			$ 8,240 51
Grand total			$344,126 96

REPORT OF THE AGENT OF DOMINION LANDS, F. L. CHRISTIE, GRANDE PRAIRIE, ALBERTA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	312	$ 3,120 00	
Soldier grants	96	.....	
Improvements	52	2,113 73	
Land sales (cash)	16	906 44	
Land sales (scrip)	1	160 00	
Searches, map sales, office fees, etc	7	3 25	
Applications for patent	384	.....	
Applications for inspection	212	.....	
Entries cancelled	362	.....	
Total			$ 6,303 42
Timber and Grazing Branch—			
Bonus (hay)	1	$ 37 50	
Timber permits	397	1,969 86	
Timber seizures	3	196 05	
Hay permits	176	479 00	
Grazing rentals (cash)	108	2,324 86	
Timber permits (excess)	87	595 36	
Hay permits (excess)	1	2 25	
Sundries (lease fees and assignments)	7	29 00	
Total			$ 5,633 88
Mining Lands and Yukon Branch—			
Mining fees	409	$ 3,945 00	
Rental	14	440 75	
Royalty	6	31 59	
Petroleum and natural gas	342	23,436 78	
Dredging	8	440 00	
Sundries (assignments and lease fees)	181	510 85	
Total			$ 28,804 97

REPORT OF THE AGENT OF DOMINION LANDS, F. L. CHRISTIE, GRANDE PRAIRIE, ALBERTA—*Con.*

	Number	Revenue	Total
Reclamation Service—			
Sales	1	$ 79 36	
Total			$ 79 36
School Lands Branch—			
Hay permits (excess)	1	$ 25	
Hay permits	65	145 50	
Grazing rentals	64	1,396 64	
Petroleum and natural gas	7	390 00	
Gravel tolls	1	1 00	
Petroleum and natural gas assignment fees	1	3 00	
Timber seizures	2	37 20	
Total			$ 1,973 59
Miscellaneous—			
Seed grain and provision payments	32	$ 3,022 70	
Total			$ 3,022 70
Grand total			$ 45,817 92

REPORT OF THE AGENT OF DOMINION LANDS, W. C. COWELL, KAMLOOPS, BRITISH COLUMBIA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	113	$ 1,130 00	
Soldier grants	15	.....	
Improvements	51	3,567 75	
Land sales	14	1,349 70	
Searches	135	98 95	
Applications for patent	100	.....	
Applications for inspection	96	.....	
Entries cancelled	63	.....	
Sundries	6	17 14	
Total			$ 6,163 54
Timber and Grazing Branch—			
Sale scale books	14	$ 31 50	
Bonus	3	1,329 85	
Ground rent	89	8,323 80	
Royalty on sales	49	19,603 85	
Timber permits	342	4,353 77	
Timber seizures	4	125 97	
Hay permits	18	27 50	
Grazing rentals	480	7,413 76	
Fire guarding	4	943 51	
Sundries	28	154 20	
Total			$ 42,307 71
Forestry Branch—			
Timber dues	36	$ 6,543 48	
Permit dues	21	18 75	
Grazing rent	17	302 90	
Hay dues	24	77 75	
Total			$ 6,942 88
Mining Lands and Yukon Branch—			
Mining fees	6	$ 50 00	
Rental	8	192 30	
Coal permits	2	200 00	
Sundries	1	1 00	
Total			$ 443 30
Miscellaneous—			
Seed grain collections	5	$ 105 02	
Total			$ 105 02
Grand total			$ 55,962 45

REPORT OF THE AGENT OF DOMINION LANDS, J. A. REID, LETHBRIDGE, ALBERTA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	149	$ 1,490 00	
Soldier grants	27		
Improvements	58	2,891 25	
Land sales (Cash)	5	845 20	
Pre-emption payments	95	31,219 10	
Purchased homestead payments	15	1,333 80	
Searches, etc.	26	10 01	
Applications for patent	409	.....	
Applications for inspection	169	.....	
Entries cancelled	260	.....	
Total			$ 37,819 66
Timber and Grazing Branch—			
Timber permits	10	1,095 85	
Timber seizures	12	240 00	
Hay permits	46	96 40	
Grazing rentals (Cash)	946	17,990 37	
Improvements	2	25 00	
Sundries	3	9 00	
Total			$ 19,456 72
Forestry Branch—			
Timber dues	439	2,460 21	
Permit fees and rental	451	457 00	
Seizures	15	121 88	
Grazing rent, etc.	294	8,841 00	
Hay dues, etc.	2	7 75	
Total			$ 11,887 84
Mining Lands and Yukon Branch—			
Mining fees	62	310 00	
Rental	86	14,483 22	
Royalty	167	53,504 19	
Petroleum and natural gas	1,208	67,465 98	
Sundries	68	203 50	
Total			$135,966 89
School Lands Branch—			
Timber seizures	1	12 32	
Hay permits	37	47 25	
Grazing rentals	433	10,395 56	
Mining fees	4	20 00	
Coal rental, petroleum and natural gas	126	7,696 45	
Coal royalty	16	14,003 95	
Cultivation permits	7	276 50	
Sundries	5	15 00	
Total			$ 31,866 83
Miscellaneous—			
Seed grain and provision payments	90	8,872 05	
Total			$ 8,872 05
Grand total			$245,869 99

REPORT OF THE ACTING AGENT OF DOMINION LANDS, G. A. NICHOLSON, MOOSE JAW, SASKATCHEWAN

	Number	Revenue	Total
Land Patents Branch—			
Soldier grants	42	$	
Homestead fees	334	3,340 00	
Improvements	52	2,850 89	
Land sales (Cash)	12	1,944 40	
Pre-emption payments	303	88,948 08	
Purchased homestead payments	24	4,716 93	
Searches	242	93 75	
Applications for patent	883	.....	
Applications for inspection	550	.....	
Entries cancelled	552	.....	
Total			$101,894 06

REPORT OF THE ACTING AGENT OF DOMINION LANDS, G. A. NICHOLSON, MOOSE JAW, SASKATCHEWAN—*Con.*

	Number	Revenue	Total
Timber and Grazing Branch—			
Timber permits	3	$ 21 50	
Hay permits	540	1,682 20	
Grazing rentals	1046	8,130 68	
Sundries	3	9 00	
Total			9,843 38
Forestry Branch—			
Surface rental	18	$ 103 00	
Timber dues	9	22 20	
Permit fees and rental	140	409 60	
Seizures	1	12 00	
Grazing rental	183	1,854 15	
Hay dues	99	588 75	
Total			3,259 70
Mining Lands and Yukon Branch—			
Mining fees	188	$ 2,056 00	
Rental	47	1,664 39	
Royalty	119	2,486 33	
Sundries	28	2,030 00	
Total			8,236 72
School Lands Branch—			
General sales	13	$ 4,569 17	
Hay permits	528	1,674 45	
Grazing rentals	980	19,431 67	
Mining fees	13	59 00	
Coal rental	8	185 12	
Coal royalty	28	2,570 66	
Cultivation permits	8	228 00	
Sundries	3	266 17	
Total			28,984 24
Miscellaneous—			
Seed grain and provision payments	232	$ 34,567 26	
Total			34,567 26
Grand total			$186,785 36

REPORT OF THE AGENT OF DOMINION LANDS, W. D. MAGEE, NEW WESTMINSTER, BRITISH COLUMBIA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	41	$ 410 00	
Soldier grants	47	.....	
Improvements	8	422 00	
Land sales	5	552 30	
Purchased homestead payments	12	484 93	
Searches, map sales, office fees, etc	12	5 70	
Applications for patent	37	.....	
Applications for inspection	74	.....	
Entries cancelled	36	.....	
Sundries, patent fees, etc	9	15 00	
Total			$ 1,889 93
Mining Lands and Yukon Branch—			
Mining fees	200	$ 1,000 00	
Rentals	1,387	55,546 10	
Bonus payments	76	532 50	
Coal applications	2	965 00	
Sundries, assignments, etc	81	245 50	
Total			58,289 10
Grand total			$ 60,179 03

REPORT OF THE AGENT OF DOMINION LANDS, R. M. TREEN, PRINCE ALBERT, SASKATCHEWAN

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	1,227	$ 12,270 00	
Pre-emption fees	1	10 00	
Soldier grants	258	.....	
Improvements	116	4,760 75	
Land sales (cash)	24	1,749 17	
Searches, map sales, office fees, etc.	252	88 50	
Applications for patent	604	.....	
Applications for inspection	649	.....	
Entries cancelled	830	.....	
Sundries	1	10 00	
Total			$18,888 42
Timber and Grazing Branch—			
Bonus	4	$ 4,291 80	
Ground rent	42	11,078 45	
Royalty on sales	64	46,815 06	
Timber permits	631	19,159 06	
Timber seizures	82	1,225 03	
Hay permits	1,088	2,997 98	
Grazing rentals (cash)	360	1,054 17	
Grazing rentals (scrip)	2	18 00	
Sundries	1	6 00	
Total			$7,575 55
Forestry Branch—			
Timber dues	815	$20,600 25	
Seizures	11	242 01	
Grazing rent, etc.	75	1,269 76	
Hay dues, etc.	119	824 25	
Total			22,936 27
Mining Lands and Yukon Branch—			
Mining fees	20	$ 100 00	
Rental	7	4,032 00	
Royalty	1	6 00	
Coal permits	2	592 50	
Sundries	15	3,632 30	
Total			8,962 80
School Lands Branch—			
Timber permits	35	$ 526 61	
Hay permits	416	906 48	
Grazing rentals	296	3,959 66	
Coal permits	4	41 50	
Cultivation permits	2	8 25	
Sundries	5	39 95	
Total			5,482 45
Miscellaneous—			
Seed grain and provision payments	46	$ 2,749 89	
Total			2,749 89
Grand total			$146,595 38

REPORT OF THE ACTING AGENT OF DOMINION LANDS, H. F. FINCHAM, PEACE RIVER, ALBERTA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	461	$ 4,610 00	
Improvements	53	2,508 50	
Land sales	21	1,662 35	
Searches, sales, etc.	9	4 10	
Applications for patent	279	.....	
Applications for inspection	227	.....	
Entries cancelled	681	.....	
Soldier grants	109	.....	
Total			$8,784 95

REPORT OF THE ACTING AGENT OF DOMINION LANDS, H. F. FINCHAM, PEACE RIVER, ALBERTA—*Con.*

	Number	Revenue	Total
Timber and Grazing Branch—			
Timber permits	499	$ 3,581 89	
Hay permits	292	1,069 15	
Grazing rentals	162	1,113 07	
Total			$ 5,764 11
Forestry Branch—			
Grazing rental	1	$ 9 37	
Hay dues	7	88 79	
Total			98 16
Mining Lands and Yukon Branch—			
Coal royalty	2	$ 42 75	
Mining fees	22	167 00	
Placer	39	390 00	
Dredging	26	1,147 00	
Petroleum and natural gas	532	38,072 29	
Coal permits	9	90 75	
Prospecting fees	178	712 00	
Total			40,621 79
School Lands Branch—			
General sales	1	$ 30 00	
Hay permits	90	389 20	
Grazing rentals	51	1,185 41	
Petroleum and natural gas	36	2,782 39	
Coal rentals	3	50 00	
Cultivation permits	1	5 00	
Total			4,442 00
Miscellaneous—			
Seed grain and provisions	10	$ 659 90	
Total			659 90
Grand total			$60,370 91

REPORT OF THE AGENT OF DOMINION LANDS, T. J. WADMAN, REVELSTOKE, BRITISH COLUMBIA

	Number	Revenue	Total
Land Patents Branch—			
Homestead entry fees	49	$ 490 00	
Soldier grant entries	7	.....	
Improvements	28	1,602 45	
Townsite payments	2	109 06	
Payments	2	95 83	
Searches, map sales, etc.	42	20 30	
Applications for patent	22	.....	
Applications for inspection	21	.....	
Entries cancelled	26	.....	
Sundries	1	35 00	
Total			$2,352 64
Timber and Grazing Branch—			
Bonus	2	$ 555 01	
Ground rentals	97	5,273 57	
Royalties	23	13,267 83	
Timber permits	95	2,350 30	
Fire guarding charges	12	470 53	
Sundries	24	131 61	
Total			22,048 85
Mining Lands and Yukon Branch—			
Application fees, petroleum and natural gas leases	14	$ 70 00	
Rental, petroleum and natural gas leases	14	404 30	
Total			474 30
Grand total			$24,875 79

REPORT OF THE AGENT OF DOMINION LANDS, M. A. MCINNES, SASKATOON, SASKATCHEWAN

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	547	$ 5,450 00	
Soldier grants	48	.....	
Improvements	73	3,538 65	
Land sales (cash)	20	1,540 93	
Land sales (scrip)	1	.....	
Pre-emption payments	118	37,254 98	
Purchased homestead payments	30	6,407 52	
Office fees, etc.	362	120 00	
Applications for patent	604	.....	
Applications for inspection	500	.....	
Entries cancelled	532	.....	
Sundries	1	3 00	
Total			$54,315 08
Timber and Grazing Branch—			
Timber permits	60	$ 247 96	
Timber seizures	2	70 58	
Hay permits	452	1,600 61	
Grazing rentals (cash)	168	813 95	
Sundries	3	9 00	
Total			$ 2,742 10
Forestry Branch—			
Timber dues	33	$ 115 07	
Permit fees and rental	128	470 36	
Seizures	13	169 30	
Grazing rents, etc.	95	1,796 06	
Hay dues, etc.	104	871 25	
Total			$ 3,422 04
Reclamation Service—			
Sales	1	$ 37 20	
Total			$ 37 20
Mining Lands and Yukon Branch—			
Mining fees	27	$ 212 75	
Rental	3	238 50	
Total			$ 451 25
School Lands Branch—			
General sales	4	$ 2,383 48	
Timber permits	4	18 00	
Hay permits	524	1,993 14	
Grazing rentals	750	11,862 70	
Mining fees	1	17 50	
Cultivation permits	17	353 00	
Sundries	3	132 50	
Total			$16,760 32
Miscellaneous—			
Seed grain and provision payment	191	$27,491 02	
Total			$27,491 02
Grand total			$105,219 01

REPORT OF THE AGENT OF DOMINION LANDS, S. LEE, SWIFT CURRENT, SASKATCHEWAN

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	287	$ 2,790 00	
Pre-emption fees	2	.....	
Purchased homestead fees	1	.....	
Soldier settlement grants	74	.....	
Improvements	81	3,044 60	
Land sales (cash)	6	865 97	
Miscellaneous	4	4 00	
Pre-emption payments	432	155,450 65	
Purchased homestead payments	21	4,654 47	
Searches, map sales, office fees, etc.	363	139 00	
Applications for patent	1,015	.....	
Applications for inspection	716	.....	
Entries cancelled	766	.....	
Certificates of recommendation	755	.....	
Total			$166,948 69

REPORT OF THE AGENT OF DOMINION LANDS, S. LEE, SWIFT CURRENT, SASKATCHEWAN—*Con.*

	Number	Revenue	Total
Timber and Grazing Lands Branch—			
Timber permits	90	$ 130 05	
Timber seizures	2	4 00	
Hay permits	211	577 00	
Grazing rentals (cash)	1,136	16,609 75	
Sundries	6	8 90	
Total			$17,329 70
Forestry Branch—			
Permit fees and rental	315	$ 739 48	
Seizures	10	58 20	
Grazing rent, etc	436	10,328 97	
Miscellaneous	11	63 75	
Total			11,190 40
Irrigation Branch—			
Sales	2	$1,816 87	
Total			1,816 87
Mining Lands and Yukon Branch—			
Mining fees, etc	60	$ 265 00	
Rental—coal	17	436 40	
Royalty—coal	27	295 16	
Petroleum and natural gas	67	3,721 30	
Quarrying	12	270 00	
Alkali	3	235 00	
Total			5,222 86
School Lands Branch—			
General sales	4	$1,703 57	
Timber permits	1	5 05	
Hay permits	152	355 25	
Grazing rentals	714	17,436 36	
Petroleum and natural gas	4	288 90	
Cultivation permits	24	1,784 35	
Sundries	5	11 25	
Total			21,584 73
Miscellaneous—			
Seed grain and provisions payments	347	$55,236 62	
Total			55,236 62
Grand total			$279,329 87

REPORT OF THE AGENT OF DOMINION LANDS, L. P. O. NOEL, WINNIPEG, MANITOBA

	Number	Revenue	Total
Land Patents Branch—			
Homestead fees	877	$8,770 00	
Soldier grants	168	.....	
Improvements	152	8,298 33	
Land sales (cash)	46	4,064 57	
Searches, maps, etc	1,670	752 60	
Sundries	2	13 00	
Applications for patent	1,183	.....	
Applications for inspection	1,283	.....	
Entries cancelled	1,062	.....	
Total			$21,898 50
Timber and Grazing Lands Branch—			
Grazing rentals	89	$668 37	
Hay leases	1	8 50	
Total			676 87
Mining Lands and Yukon Branch—			
Mining fees	1,787	$13,924 48	
Quarries	45	1,184 29	
Petroleum and natural gas	14	864 45	
Total			15,973 22
School Lands Branch—			
Sales	10	$2,402 76	
Hay leases	2	80 00	
Grazing rentals	162	2,539 65	
Mining fees	6	35 00	
Petroleum and natural gas	8	1,480 00	
Cultivation permits	10	486 50	
Total			7,023 91
Miscellaneous—			
Seed grain and relief payments	....	$7,169 16	
Total			7,169 16
Grand total			$52,741 66

REPORT OF THE CONTROLLER OF THE LAND PATENTS BRANCH AND REGISTRAR OF DOMINION LANDS PATENTS, N. O. COTE

With statements, A to L in relation thereto

LETTERS PATENT

The number of letters patent issued was 13,116, covering an area of 2,024,519 acres, which may be classified as follows:—

Province	Patents	Acres
Manitoba	2,395	362,175
Saskatchewan	5,551	883,043
Alberta	4,792	739,849
British Columbia	312	38,761
Yukon Territory	20	391
Northwest Territories	16	300
	13,116	2,024,519

These grants are given in detail in the statements marked A to G, inclusive, and may be summarized as follows:—

Grants	Patents	Acres
Homesteads	9,656	1,501,399
Sales	1,261	198,842
Pre-emptions	1,481	234,393
Purchased homesteads	178	26,140
Railways	96	3,154
Special or free grants	362	48,407
Northwest Halfbreeds	4	723
Licenses of occupation	10	410
Soldier grants	63	10,015
Hudson's Bay Company	5	1,036
	13,116	2,024,519

There was a decrease of 4,831 letters patent and a decrease in the area patented of 728,975 acres as compared with the previous year.

There are recorded in the Lands Patent Branch 446,331 letters patent, aggregating 99,607,938 acres, which have been issued since May, 1873, to March 31, 1922.

LANDS DISPOSED OF

Seven thousand three hundred and forty-nine homestead entries were granted, aggregating an approximate area of 1,175,840 acres, made up by provinces as follows:—

Province	Homestead entries
Manitoba	1,488
Saskatchewan	2,733
Alberta	2,928
British Columbia	200
	7,349

There was an increase of 1,960 in the number of homestead entries granted, as compared with the previous year.

By land agencies the 7,349 homestead entries are made up as follows:—

	Entries
Manitoba—	
Dauphin	611
Winnipeg	877
	1,488
Saskatchewan—	
Battleford	343
Moose Jaw	334
Prince Albert	1,228
Saskatoon	548
Swift Current	280
	2,733
Alberta—	
Calgary	341
Edmonton	1,664
Grande Prairie	312
Lethbridge	149
Peace River	462
	2,928
British Columbia—	
Kamloops	111
New Westminster	41
Revelstoke	48
	200

The 7,349 entrants for homesteads represented 15,573 persons, as compiled from information obtained from each entrant. Of these entries 2,162 were made by residents of the several provinces of the Dominion; 3 by Canadians who had returned from the United States, and 946 by persons who had previously obtained homestead entries, but which entries had been cancelled by default or at the request of the entrants in order, in most cases, to enter for other lands; 1,083 were made by persons from the British Isles; 1,505 by people from the United States; 712 by naturalized Austro-Hungarians; 208 by Russians and Finns; 159 by Norwegians; 173 by Swedes; 40 by naturalized Germans; 63 by Frenchmen; 37 by Belgians, and the remaining 258 were made by citizens of various other countries.

There were 1,655 soldier grant entries made during the year, aggregating approximately 264,800 acres, made up by provinces as follows:—

	No. of entries	Acres
Manitoba	383	61,280
Saskatchewan	590	94,400
Alberta	614	98,240
British Columbia	68	10,880
	1,655	264,800

By land agencies as follows:—

Manitoba—		
Dauphin	214	
Winnipeg	169	
		383
Saskatchewan—		
Battleford	95	
Moose Jaw	42	
Prince Albert	298	
Saskatoon	79	
Swift Current	76	
		590

Alberta—		
Calgary	80	
Edmonton	302	
Grande Prairie	96	
Lethbridge	27	
Peace River	109	
		614
British Columbia—		
Kamloops	18	
New Westminster	43	
Revelstoke	7	
		68
		1,655

CANCELLED ENTRIES

There were cancelled 8,554 entries, as follows:—

	Manitoba	Saskatchewan	Alberta	British Columbia
Homesteads	1,846	2,370	3,383	207
Pre-emptions	....	490	149	....
Purchased homesteads	....	29	9	....
Sales	....	36	25	10
Total	1,846	2,925	3,566	217

SALES

Two hundred and ninety-one sales were made for 10,493 acres of land, with an average for each sale of about 36 acres.

ACCOUNTS AND REVENUE

There are at present kept in this branch about 20,300 individual accounts in connection with purchased homesteads, pre-emptions and ordinary sales.

The sum of $742,451.72, including $165,790.25 interest on deferred payments, was received on account of purchased homesteads, pre-emptions and ordinary sales, being a decrease of $961,960.55 as compared with the payments received during the previous year.

The amount of $133,862.69 has also been received for entry fees, improvements and sundries, making a total revenue for the fiscal year of $876,314.41.

REFUNDS

There were 1,075 refunds made, amounting to $55,428.86, as follows:—

722 refunds—Value of improvements collected on cancelled homesteads	$45,340 54
353 refunds—Overpayments on sales; and of moneys paid on account of purchased homesteads and pre-emption sales, entries for which have been cancelled	10,088 32
	$55,428 86

NEWLY SURVEYED LANDS THROWN OPEN TO HOMESTEAD ENTRY

Newly surveyed lands comprised in one hundred and three townships were made available for homestead entry in the following land agencies:—

Dauphin, Man.	in 20 townships
Winnipeg, Man.	" 8 "
Battleford, Sask.	" 5 "
Prince Albert, Sask.	" 15 "
Saskatoon, Sask.	" 1 "
Calgary, Alta.	" 1 "
Edmonton, Alta.	" 1 "
Grande Prairie, Alta.	" 13 "
Peace River, Alta.	" 24 "
New Westminster, B.C.	" 7 "
Kamloops, B.C.	" 5 "
Revelstoke, B.C.	" 3 "

STATEMENT A.—Letters patent issued covering Dominion Lands situate in Manitoba, Saskatchewan, and Alberta, Northwest Territories, British Columbia, and the Yukon Territory.

No.	Nature of Grant	From April 1, 1921, to March 31, 1922		From April 1, 1920, to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Alberta Railway and Irrigation Co's sales	.....	.....	1	142
2	British Columbia homesteads	202	21,922	156	18,538
3	British Columbia sales	15	1,276	9	402
4	Coal surface sales	.....	.....	1	670
5	Greater Winnipeg Water District	.....	.....	1	2
6	Homesteads, Peace River Block	87	13,850	108	16,716
7	Homesteads	9,363	1,464,675	12,065	1,899,668
8	Hudson's Bay Co	5	1,036	2	108
9	License of occupation	10	410	12	26
10	Military bounty grants	2	319	2	318
11	Military homesteads	2	632	.....	.....
12	Mining lands sales, (55 acres under rights)	14	653	12	612
13	Mineral rights, (3,494 acres)	12	.....	5	.....
14	Northwest half-breed grants	4	723	3	283
15	Parish sales	6	508	7	829
16	Pre-emptioa sales	1,481	234,393	3,350	531,045
17	Purchased homesteads	178	26,140	406	62,369
18	Quit claim, sales	20	869	16	867
19	Quit claim, special grants	58	7,546	25	2,057
	Railways—				
20	Alberta and Great Waterways Railway Co.	1	7	1	6
21	Calgary and Edmonton Railway Co	.....	.....	1	317
22	Canadian Northern Alberta Railway Co	.....	.....	15	153
23	Canadiaa Northern Railway Co	20	2,191	24	5,313
24	Canadian Northern Saskatchewan Railway Co	2	14	.....	.....
25	Canadina Northern Pacific Railway Co	6	66	12	76
26	Canadian Northern Western Railway Co	10	90	3	27
27	Canadian Pacific Railway grants	18	126	24	3,026
28	Canadian Pacific Railway roadbed and station grounds	11	135	33	366
29	Central Canada Railway Co	9	133	1	11
30	Edmonton, Dunvegan and British Columbia Railway Co	14	170	8	87
31	Grand Trunk Pacific Railway Co	.....	.....	8	564
32	Grand Trunk Pacific Branch Lines Co	1	1	13	98
33	Kettle Valley Railway Co	.....	.....	43	665
34	Manitoba Southwestern Colonization Railway Co	2	206	1	5
35	Nicola, Kamloops and Similkameen Railway Co	2	15	3	30
36	Sales	348	33,755	464	26,662
37	Sales, Peace River Block	1	61	1	81
38	School lands sales	827	161,649	767	138,689
39	School lands sales, special grants	1	12	.....	.....
40	Soldier grants	63	10,015	49	7,805
41	Special grants	301	40,530	255	34,791
42	Yukon Territory homesteads	2	320	.....	.....
43	Yukon Territory sales, (51·65 acres, under rights)	18	71	40	70
	Totals	13,116	2,024,519	17,947	2,753,494

STATEMENT B—Letters patent issued covering Dominion Lands in the Province of Manitoba

No.	Nature of Grant	From April 1, 1921, to March 31, 1922		From April 1, 1920, to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Greater Winnipeg Water District			1	2
2	Homesteads	2,063	321,308	2,249	352,465
3	Hudson's Bay Co	1	160		
4	Military bounty grants			1	160
5	Mining lands sales	8	361	12	612
6	Parish sales	6	508	6	777
7	Pre-emption sales	2	320	3	336
8	Quit claim, sales	2	107		
9	Quit claim, special grants	8	421	2	80
	Railways—				
10	Canadian Northern Railway Co	7	45	6	73
11	Canadian Pacific Railway grants			1	24
12	Canadian Pacific Railway roadbed and station grounds	6	37	1	2
13	Manitoba Southwestern Colonization Railway Co	2	206	1	5
14	Sales	71	2,344	80	4,229
15	School lands sales	129	23,839	194	33,172
16	Soldier grants	1	154		
17	Special grants	89	12,365	44	5,489
	Totals	2,395	362,175	2,601	397,426

STATEMENT C—Letters patent issued covering Dominion Lands in the Province of Saskatchewan

No.	Nature of Grant	From April 1, 1921, to March 31, 1922		From April 1, 1920, to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Homesteads	3,638	570,939	5,227	823,931
2	Hudson's Bay Co	1	408		
3	License of occupation	1	1	3	7
4	Military homesteads	1	320		
5	Mining lands sales	5	239		
6	Mineral rights (1,285 acres)	4			
7	Northwest half-breed grants	2	403	1	48
8	Pre-emption sales	952	150,675	2,279	361,561
9	Purchased homesteads	115	17,762	284	44,204
10	Quit claim, sales	13	495	12	612
11	Quit claim, special grants	33	4,544	16	1,577
	Railways—				
12	Canadian Northern Railway Co	13	2,146	16	5,231
13	Canadian Northern Saskatchewan Railway	2	14		
14	Canadian Pacific Railway grants	9	102	19	2,967
15	Canadian Pacific Railway roadbed and station grounds			2	56
16	Edmonton, Dunvegan and British Columbia Railway Co			6	86
17	Grand Trunk Pacific Railway Co			1	
18	Grand Trunk Pacific Branch Lines Co	1	1	2	3
19	Sales	127	6,735	194	12,518
20	School lands sales	511	110,388	402	74,417
21	School lands, special grants	1	12		
22	Soldier grants	37	5,873	32	5,090
23	Special grants	85	11,986	54	6,024
	Totals	5,551	883,043	8,550	1,338,332

STATEMENT D—Letters patent issued covering Dominion Lands in the Province of Alberta

No.	Nature of Grant	From April 1, 1921 to March 31, 1922		From April 1, 1920 to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Alberta Railway and Irrigation Co's sales	.....	.....	1	142
2	Coal surface sales	.....	.....	1	670
3	Homesteads	3,662	572,428	4,589	723,272
4	Hudson's Bay Co	3	468	2	108
5	License of occupation	9	409	9	19
6	Military bounty grants	2	319	1	158
7	Military homesteads	1	312	.....	.....
8	Mining lands sales (55 acres, under rights)	1	53	.....	.....
9	Mineral rights (2,209 acres)	8	.....	5	.....
10	Northwest half-breed grants	2	320	2	235
11	Pre-emption sales	527	83,398	1,068	169,148
12	Purchased homesteads	55	8,252	117	18,095
13	Quit claim, sales	5	267	4	255
14	Quit claim, special grants	17	2,581	7	400
	Railways:—				
15	Alberta and Great Waterways Railway Co	1	7	1	6
16	Calgary and Edmonton Railway Co	.....	.....	1	317
17	Canadian Northern Railway Co	.....	.....	2	9
18	Canadian Northern Alberta Railway Co	.....	.....	15	153
19	Canadian Northern Western Railway Co	10	90	3	27
20	Canadian Pacific Railway grants	8	14	3	23
21	Canadian Pacific Railway roadbed and station grounds	.....	.....	1	9
22	Central Canada Railway Co	9	133	1	11
23	Edmonton Dunvegan and British Columbia Railway Co	14	170	2	1
24	Grand Trunk Pacific Railway Co	.....	.....	7	564
25	Grand Trunk Pacific Branch Lines Co	.....	.....	11	95
26	Sales	135	24,378	180	9,813
27	School lands sales	187	27,422	171	31,100
28	Soldier grants	25	3,988	17	2,715
29	Special grants	111	14,840	149	22,317
	Totals	4,792	739,849	6,370	979,662

STATEMENT E—Letters patent issued covering Dominion Lands in the Province of British Columbia

No.	Nature of Grant	From April 1, 1921 to March 31, 1922		From April 1, 1920 to March 31, 1921	
		Patents	Acres	Patents	Acres
1	British Columbia homesteads	202	21,922	156	18,538
2	British Columbia sales	15	1,276	9	402
3	Homesteads, Peace River block	87	13,850	108	16,716
4	Parish sales	.....	.....	1	52
5	Purchased homesteads	8	126	5	70
	Railways:—				
6	Canadian Pacific Railway grants	1	10	1	12
7	Canadian Pacific Railway roadbed and station grounds	5	98	29	299
8	Canadian Northern Pacific Railway Co	6	66	12	76
9	Kettle Valley Railway Co	.....	.....	43	665
10	Nicola, Kamloops and Similkameen Railway Co	2	15	3	30
11	Sales, Peace River block	1	61	1	81
12	Special grants	15	1,337	8	961
	Totals	342	38,761	376	37,902

STATEMENT F—Letters patent issued covering Dominion Lands in the Yukon Territory

No.	Nature of Grant	From April 1, 1921 to March 31, 1922		From April 1, 1920 to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Yukon Territory homesteads	2	320	.....	.....
2	Yukon Territory sales	18	71	40	70
	Totals	20	391	40	70

STATEMENT G—Letters patent issued covering Dominion Lands in the Northwest Territories

No.	Nature of Grant	From April 1, 1921 to March 31, 1922		From April 1, 1920 to March 31, 1921	
		Patents	Acres	Patents	Acres
1	Sales	15	298	10	102
2	Special grants	1	2	.....	.....
	Totals	16	300	10	102

STATEMENT II—Number of Homestead Entries made during the fiscal year 1921-22, the nationality of the homesteaders and the provinces in which the entries were made.

Nationalties	Provinces				Total
	Manitoba	Saskatchewan	Alberta	British Columbia	
Canadians from Ontario	121	366	279	20	786
" Quebec	57	127	127	7	318
" Nova Scotia	18	35	29	1	83
" New Brunswick	7	17	28	2	54
" Prince Edward Island	11	18	14	4	47
" Manitoba	241	109	44	4	398
" Saskatchewan	9	154	37	1	201
" Alberta	3	14	200	3	220
" British Columbia		9	28	18	55
Persons who had previous entry	140	326	467	13	946
Newfoundlanders	2		2		4
Canadians returned from the United States		1	2		3
Americans	133	567	790	15	1,505
English	159	272	280	51	762
Scotch	48	81	89	11	229
Irish	17	33	40	2	92
French	18	22	23		63
Belgians	17	15	5		37
Swiss	7	2	8		17
Italians		7	11	4	22
Roumanians	6	29	10	3	48
Syrians		1	1		2
Germans	6	11	22	1	40
Austro-Hungarians	309	219	166	18	712
Hollanders	5	7	11		23
Danes (other than Icelanders)	6	18	20		44
Icelanders	12	5	2		19
Swedes	34	79	48	12	173
Norwegians	20	74	61	4	159
Russians other than Finns	39	77	49	3	168
Finns	22	6	12		40
Servians					
Bulgarians					
Chinese		2			2
Japanese					
Persians					
Australians		1		1	2
New Zealanders			2	1	3
Hindoos					
Greeks		1	2		3
Poles	20	28	16	1	65
South Americans			2		2
South Africans			1		1
Armenians	1				1
Total	1,488	2,733	2,928	200	7,349

Number of souls represented by above entries, 15,573.

STATEMENT I—Number of Homestead Entries made in the Provinces of Manitoba, Saskatchewan, Alberta, and British Columbia during the fiscal year 1921-22 by persons coming from the United States of America

States	Provinces				Total
	Manitoba	Saskatchewan	Alberta	British Columbia	
Alabama		1	2		3
Alaska					
Arizona					
Arkansas	1	1	4		6
California		3	14	1	18
Carolina, North			5	1	6
Carolina, South		1	3		4
Colorado			9		9
Columbia, District of			1		1
Connecticut	1	2	2	1	6
Dakota, North	30	76	58		164
Dakota, South	1	35	35	2	73
Delaware		1			1
Florida					
Georgia	1	1	2		4
Idaho		5	17		22
Illinois	4	12	33		49
Indiana	3	16	15		34
Indian Territory		3	5		8
Iowa	5	33	47	1	86
Kansas	2	9	22		33
Kentucky	4	9	7		20
Louisiana		1			1
Maine		2	4		6
Maryland		2			2
Massachusetts	3	12	10		25
Michigan	7	41	53	2	103
Minnesota	26	151	107	1	285
Mississippi		3	1		4
Missouri	4	22	36		62
Montana		13	39		52
Nebraska	3	19	30		52
Nevada					
New Hampshire			2		2
New Jersey		2	1		3
New Mexico					
New York	6	9	34	1	50
Ohio	5	12	18	1	36
Oklahoma		5	9		14
Oregon	1	3	24	1	29
Pennsylvania		6	14		20
Rhode Island	1	3	2		6
Tennessee		2	4		6
Texas		5	10		15
Utah			5		5
Vermont	2	2	3		7
Virginia	3	4	6		13
Virginia, West	1	2	5		8
Washington	2	4	40		46
Wisconsin	17	34	36	3	90
Wyoming		..	16		16
Total	133	567	790	15	1,505

STATEMENT J—Number of Homestead Entries made during the fiscal year as compared with the previous fiscal year

Agency	Manitoba		Saskatchewan		Alberta		British Columbia		Total
	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	
Battleford			343	367					
Calgary					341	280			
Dauphin	611	358							
Edmonton					1,664	1,297			
Grande Prairie					312	548			
Kamloops							111	71	
Lethbridge					149	78			
Moose Jaw			334	240					
New Westminster							41	44	
Peace River					462	671			
Prince Albert			1,228	674					
Revelstoke							48	5	
Saskatoon			548	163					
Swift Current			280	226					
Winnipeg	877	367							
Fiscal year 1921-22									7,349
Fiscal year 1920-21									5,389
Increase									1,960
Total	1,488	725	2,733	1,670	2,928	2,874	200	120	

RECAPITULATION

Month	Manitoba		Saskatchewan		Alberta		British Columbia	
	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21
April	83	90	149	130	251	192	16	11
May	355	59	625	144	447	316	34	11
June	170	86	329	207	385	356	24	10
July	160	83	326	253	357	332	17	11
August	146	64	275	191	311	297	20	13
September	122	61	183	129	198	254	12	10
October	126	73	225	123	287	271	19	7
November	138	61	242	151	241	237	20	4
December	74	45	147	114	154	214	9	10
January, 1922	45	32	87	77	83	124	7	4
February, 1922	25	27	62	79	92	120	6	11
March, 1922	44	44	83	72	122	161	16	18
Total	1,488	725	2,733	1,670	2,928	2,874	200	120

STATEMENT K—Number of Soldier Grant Entries made during the fiscal year 1921-22 as compared with the previous fiscal year

Agency	Manitoba		Saskatchewan		Alberta		British Columbia		Total
	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	
Battleford			95	218					
Calgary					80	212			
Dauphin	214	185							
Edmonton					302	489			
Grande Prairie					96	209			
Kamloops							18	38	
Lethbridge					27	73			
Moose Jaw			42	153					
New Westminster							43	12	
Peace River					109	188			
Prince Albert			298	467					
Revelstoke							7	8	
Saskatoon			79	166					
Swift Current			76	184					
Winnipeg	169	290							
Fiscal years 1920-21									2,892
Fiscal year 1921-22									1,655
Net Decrease									
Total	383	475	590	1,188	614	1,171	68	58	1,237

RECAPITULATION

Month	Manitoba		Saskatchewan		Alberta		British Columbia	
	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21	1921-22	1920-21
April	200	56	105	127	88	144	41	4
May	32	56	88	120	91	155	5	8
June	25	65	69	162	75	138	0	10
July	26	60	74	191	81	109	6	5
August	22	36	106	120	67	118	5	2
September	18	44	34	86	31	90	0	4
October	20	35	17	87	52	93	1	5
November	16	26	41	88	46	96	3	4
December	6	33	15	65	21	77	2	5
January	5	26	14	49	29	54	2	0
February	6	13	14	39	12	41	1	5
March	7	25	13	54	21	56	2	6
Total	383	475	590	1,188	614	1,171	68	58

STATEMENT L—Number of Letters Patent issued by the Department of the Interior for Dominion Lands since 1873, and the number of acres patented

Period	Number of patents issued	Acreage
1873, May to December 31	420	67,200
1874, January 1 to December 31	577	92,320
1875, January 1 to October 31	464	74,240
1876, year ended October 31	318	50,880
1877, " "	2,437	478,840
1878, " "	2,357	462,880
1879, " "	2,663	426,080
1880, " "	1,084	173,440
1881, " "	1,885	400,862
1882, " "	2,197	506,785
1883, " "	4,341	831,341
1884, " "	3,896	909,604
1885, " "	3,533	898,464
1886, " "	4,570	942,055
1887, " "	4,599	1,071,364
1888, " "	3,275	647,644
1889, " "	3,282	661,636
1890, " "	3,273	626,019
1891, " "	2,479	411,073
1892, " "	2,955	549,257
1893, " "	2,936	502,601
1894, " "	2,553	420,238
1894, November and December	413	66,102
1895, Year ended December 31	2,118	348,964
1896, " "	2,665	531,861
1897, " "	2,972	499,859
1898, " "	3,037	646,671
1899, " "	3,904	714,748
1900, January 1 to June 30	1,970	310,501
1901, Year ended June 30	6,461	6,846,857
1902, " "	8,768	4,711,104
1903, " "	7,349	3,266,388
1904, " "	6,890	2,982,579
1905, " "	8,798	6,197,354
1906, " "	12,370	4,181,345
1906, July 1 to March 31, 1907	10,596	2,361,330
1908, Year ended March 31	18,690	6,138,977
1909, " "	22,431	4,215,326
1910, " "	22,854	3,662,259
1911, " "	21,754	3,710,288
1912, " "	19,354	3,155,388
1913, " "	24,965	4,209,388
1914, " "	31,053	5,192,141
1915, " "	24,260	3,996,013
1916, " "	18,989	3,089,636
1917, " "	18,774	3,019,178
1918, " "	23,227	3,721,632
1819, " "	16,810	3,063,383
1920, " "	7,732	2,785,830
1921, " "	17,947	2,753,494
1922, " "	13,116	2,024,938
	446,331	99,607,938

REPORT OF THE CONTROLLER OF SCHOOL LANDS, W. T. ROLLINS

Owing to the prevailing financial depression, no school lands were offered for sale by public auction during the fiscal year. A considerable area, however, was disposed of by private sale as shown by the following statements:—

MANITOBA

How disposed of	Area	Value	Average Per acre
Soldier Settlement Board	4,034·66	$ 41,235 24	$ 10 22
Railway companies	23·35	260 50	11 16
School sites	7·00	70 00	10 00
Total	4,065·01	$ 41,565 74	$ 10 22

SASKATCHEWAN

How disposed of	Area	Value	Average Per acre
Soldier Settlement Board	35,121·30	$ 472,485 09	$ 13 45
Railway companies	85·02	1,402 19	16 49
School sites	3·04	30 40	10 00
Dried-up areas	131·30	1,113 50	8 48
Total	35,340·66	$ 475,031 18	$ 13 44

ALBERTA

How disposed of	Area	Value	Average Per acre
Soldier Settlement Board	4,924·11	$ 74,994 79	$ 15 23
Railway companies	36·37	544 48	14 97
School sites	25·00	258 15	10 33
Town lot		200 00	
Total	4,985·48	$ 75,997 42	$ 15 24

The following statement shows the approximate area of school lands disposed of down to March 31, 1922, after making deductions for cancelled sales, etc.:—

Province	Area Acres	Value	Average
Manitoba	664,218·57	$ 6,425,600 75	$ 9 67
Saskatchewan	1,511,097·80	26,450,429 55	17 50
Alberta	952,164·94	13,161,415 19	13 82

The value of town lots disposed of to March 31, 1922, was as follows:—

Manitoba	$ 4,803 40
Saskatchewan	13,291 00
Alberta	39,880 00

The number of permits and leases issued, the number of leases in good standing, and the combined revenue derived therefrom for the three provinces to March 31, 1922, was as follows:—

	Permits Issued	Leases Issued	Leases in good standing	Revenue derived
Grazing	6,692	....	....	$104,741 23
Coal	....	....	78	28,949 05
Petroleum and gas	....	389	628	32,411 31
Hay	3,667	3	22	10,209 72
Cultivation	198	....	....	4,237 48
Timber	191	....	....	9,452 72
Special	....	....	15	1,040 62

Registration Fees—The revenue derived from the registration of 420 assignments for the three provinces amounted to $1,202.85.

The total net revenue collected for the fiscal year was as follows:—

Manitoba	$ 203,795 51
Saskatchewan	1,475,299 55
Alberta	602,688 53
Total	$2,281,783 59

The revenue collected for the fiscal year, less principal moneys and less expenditure, was paid over to the Governments of the provinces of Manitoba, Saskatchewan, and Alberta, as follows:—

Manitoba—	
Revenue other than principal moneys	$ 65,494 08
Less expenditure	16,292 16
Amount paid to province	$ 49,201 92
Saskatchewan—	
Revenue other than principal moneys	$433,195 70
Less expenditure	49,947 00
Amount paid to province	$383,248 70
Alberta—	
Revenue other than principal moneys	$290,782 97
Less expenditure	34,633 36
Amount paid to province	$256,149 61

The balance standing to the credit of the School Lands Fund for each province as on March 31, 1922, was as follows:—

Manitoba—	
Total amount at credit of fund	$ 5,635,839 74
Amount invested in debenture stock	5,635,000 00
Balance of fund uninvested	$ 839 74
Saskatchewan	
Total amount at credit of fund	$12,027,514 84
Amount invested in debenture stock	12,027,000 00
Balance of fund uninvested	$ 514 84
Alberta—	
Total amount at credit of fund	$ 6,471,051 94
Amount invested in debenture stock	6,471,000 00
Balance of fund uninvested	$ 51 94

Statements herewith lettered A, B and C, respectively, show the revenue collected from each of the provinces of Manitoba, Saskatchewan, and Alberta, duly classified.

Statements herewith lettered D, E and F, respectively, show the balance standing to the credit of the School Lands Fund for each province as on March 31, 1922, after deducting amounts invested in Dominion of Canada debenture stock, as provided for by order in council dated December 1, 1919.

STATEMENT A—Manitoba School Lands—Revenue collected for the fiscal year 1921-22

	Sales		Total	Cultivation	Grazing rent	Timber	Hay	Coal	Petroleum and Natural gas	Registration fees	Miscellaneous	Total
	Principal	Interest										
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Total	146,357 00	53,006 13	199,363 13	719 50	3,867 83	4,803 54	3,254 27	5 00	1,531 39	8 00	36 00	213,588 66
Registration fees transferred from Dominion Lands										163 00		163 00
Total	146,357 00	53,006 13	199,363 13	719 50	3,867 83	4,803 54	3,254 27	5 00	1,531 39	171 00	36 00	213,751 66
Office fees transferred to Dominion Lands						75 75	461 50					537 25
Total	146,357 00	53,006 13	199,363 13	719 50	3,867 83	4,727 79	2,792 77	5 00	1,531 39	171 00	36 00	213,214 41
Refunds	8,055 57	126 97	8,182 54	177 50	418 38	242 60	157 88		240 00			9,418 90
Total	138,301 43	52,879 16	191,180 59	542 00	3,449 45	4,485 19	2,634 89	5 00	1,291 39	171 00	36 00	203,795 51

STATEMENT B—Saskatchewan School Lands—Revenue collected for the fiscal year 1921-22

	Sales		Total	Cultivation	Grazing rent	Timber	Hay	Coal	Petroleum and Natural gas	Registration fees	Miscellaneous	Total
	Principal	Interest										
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Total	1,071,059 95	361,667 12	1,432,727 07	3,557 25	62,729 86	837 41	5,917 37	3,673 53	1,144 30	34 00	1,118 54	1,511,739 33
Registration fees transferred from Dominion Lands										488 65		488 65
Total	1,071,059 95	361,667 12	1,432,727 07	3,557 25	62,729 86	837 41	5,917 37	3,673 53	1,144 30	522 65	1,118 54	1,512,227 98
Office fees transferred to Dominion Lands						54 75	880 50					935 25
Total	1,071,059 95	361,667 12	1,432,727 07	3,557 25	62,729 86	782 66	5,036 87	3,673 53	1,144 30	522 65	1,118 54	1,511,292 73
Refunds	28,956 10	1,866 95	30,823 05	215 00	4,666 65	10 50	162 30	35 00	58 95		21 73	35,993 18
Total	1,042,103 85	359,800 17	1,401,904 02	3,342 25	58,063 21	772 16	4,874 57	3,638 53	1,085 35	522 65	1,096 81	1,475,299 55

STATEMENT C—Alberta School Lands—Revenue collected for the fiscal year 1921-22

	Sales		Total	Cultivation	Grazing rent	Timber	Hay	Coal	Petroleum and natural gas	Registration fees	Miscellaneous	Total
	Principal	Interest										
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts
Total	313,363 01	185,190 47	498,553 48	353 23	47,113 96	4,521 78	3,666 56	25,474 77	31,261 93	66 00	189 28	611,200 99
Registration fees transferred from Dominion Lands	.....	.....	.....	.....	.....	.....	.....	.....	.....	551 20	.....	551 20
Total	313,363 01	185,190 47	498,553 48	353 23	47,113 96	4,521 78	3,666 56	25,474 77	31,261 93	617 20	189 28	611,752 19
Office fees transferred to Dominion Lands	.....	.....	.....	.....	.....	41 00	491 50	.....	.....	.....	.....	532 50
Total	313,363 01	185,190 47	498,553 48	353 23	47,113 96	4,480 78	3,175 06	25,474 77	31,261 93	617 20	189 28	611,219 69
Refunds	1,457 45	1,030 57	2,488 02	.....	3,885 39	285 41	474 80	169 25	1,227 36	.....	93	8,531 16
Total	311,905 56	184,159 90	496,065 46	353 23	43,228 57	4,195 37	2,700 26	25,305 52	30,034 57	617 20	188 35	602,688 53

STATEMENT D—Manitoba School Lands—Revenue and Expenditure on account of

Particulars	Period	Dr.	Cr.
		$ cts	$ cts.
By balance on April 1, 1921			538 31
" sales	12 months ended March 31, 1922		191,180 59
" cultivation permits	" " "		542 00
" timber dues, hay permits, grazing rental, coal, petroleum and miscellaneous	" " "		11,901 92
" registration fees	" " "		171 00
" interest on fund	" " "		1,261 31
To cost of management at Ottawa	" " "	11,743 22	
" salaries, printing and advertising and general expenses	" " "	4,548 94	
" revenue and interest paid to Manitoba Government	" " "	49,201 92	
" interest on fund paid to Manitoba Government	" " "	1,261 31	
" investments in 5 per cent debenture bonds	" " "	138,000 00	
" balance March 31, 1922		839 74	
		205,595 13	205,595 13

NOTE.—Balance at credit of Manitoba School Lands Fund on March 31, 1922, was $5,635,839.74 of which $5,635,000.00 is invested in 5 per cent Dominion of Canada debenture stock, maturing October 1, 1922, as per Order in Council of December 1, 1919. Interest paid on investmeat for fiscal year 1921-22 totalled $276,935 62.

STATEMENT E—Saskatchewan School Lands—Revenue and Expenditure on account of

Particulars	Period	Dr.	Cr.
		$ cts.	$ cts.
By balance on April 1, 1921			1,410 99
" sales	12 months ended March 31, 1922		1,401,904 02
" cultivation permits	" " "		3,342 25
" timber dues, hay permits, grazing rental, coal, petroleum and miscellaneous	" " "		69,530 63
" registration fees	" " "		522 65
" interest on fund	" " "		8,545 96
To cost of management at Ottawa	" " "	35,229 64	
" salaries, printing, advertising and general expenses	" " "	14,717 36	
" revenue and interest paid to Saskatchewan Government	" " "	383,248 70	
" interest on fund paid to Saskatchewan Government	" " "	8,545 96	
" investments in 5 per cent debenture bonds	" " "	1,043,000 00	
" balance March 31, 1922		514 84	
		1,485,256 50	1,485,256 50

NOTE.—Balance at credit of Saskatchewan School Lands Fund on March 31, 1922 was $12,027,514.84 of which $12,027,000 00 is invested in 5 per cent debenture stock maturing October 1, 1922, as per Order in Council of December 1, 1919. Interest paid on investments for fiscal year 1921-22 totalled $565,251.30.

STATEMENT F—Alberta School Lands—Revenue and Expenditure on account of

Particulars	Period	Dr.	Cr.
		$ cts	$ cts.
By balance on April 1, 1921			146 38
" sales	12 months ended March 31, 1922		496,065 46
" cultivation permits	" " "		353 23
" timber dues, hay permits, grazing rental, coal, petroleum and miscellaneous	" " "		105,652 64
" registration fees	" " "		617 20
" interest on fund	" " "		4,069 23
To cost of management at Ottawa	" " "	23,486 43	
" salaries, printing, advertising and general expenses	" " "	11,146 93	
" revenue and interest paid to Alberta Government	" " "	256,149 61	
" interest on fund paid to Alberta Government	" " "	4,069 23	
" investments in 5 per cent debenture bonds	" " "	312,000 00	
" balance March 31, 1922		51 94	
		606,904 14	606,904 14

NOTE.—Balance at credit of Alberta Schools Lands Fund on March 31, 1922 was $6,471,051.94 of which $6,471,000.00 is invested in 5 per cent debenture stock maturing October 1, 1922 as per Order in Council of December 1, 1919. Interest paid on investments for fiscal year 1921–22 totalled $313,170.27.

REPORT OF THE SUPERINTENDENT, MINING LANDS AND YUKON BRANCH, H. H. ROWATT

The total revenue of this branch, derived from all sources during the fiscal year 1921-22, amounts to $1,049,089.24. There is a decrease in the revenue of the branch, amounting to $166,066.87. This is partly due to an amendment to the Petroleum and Natural Gas Regulations, under the provisions of which lessees who incur an expenditure in drilling operations in excess of that which might be applied to the payment of the accrued rental due on the leases affected, may obtain credit for a portion of such excess expenditure and may apply such credit to the payment of the rental of other petroleum locations acquired by such lessees.

Statements lettered A and B, showing in different forms how the revenue is made up, will be found at the end of this report. The statement lettered A shows the total revenue, and the statement lettered B shows the revenue collected at each agency, including the Yukon Territory.

The revenue from the Yukon Territory for the year amounts to $97,176.10, an increase of $6,139.97 over the previous year.

The reports and statements for the fiscal year from the Gold Commissioner and the Crown Timber and Land Agent at Dawson, in the Yukon Territory, also the report of the Inspecting Engineer of Mines, are submitted.

PETROLEUM AND NATURAL GAS

There are now in force under the regulations 7,279 petroleum and natural gas leases, embracing a total area of 2,260,840·74 acres, distributed as follows: In Manitoba, 254 leases, comprising 42,673·05 acres; in Saskatchewan, 335 leases, comprising 141,657·20 acres; in Alberta, 5,097 leases; comprising 1,681,006·30 acres; in British Columbia, 1,393 leases, comprising 242,389·21 acres; and in the Northwest Territories, 200 leases, comprising 153,114·98 acres, and 126 permits, comprising 194,273·62 acres. The total area under lease and permit in the Northwest Territories is 347,388·60 acres. The total revenue derived from petroleum lands during the year amounts to $487,983.67.

Natural gas, which has been discovered in large quantities, is being utilized for domestic and industrial purposes in different parts of the province of Alberta. Oil in small quantities has been discovered in different parts of the province of Alberta and in the Northwest Territories, and drilling operations with a view to further discoveries are being diligently prosecuted in different parts of the provinces of Alberta, Saskatchewan, and Manitoba, as well as in the Northwest Territories. Oil in what would appear to be commercial quantity is reported to have been discovered in the state of Montana near the international boundary, and as a result a large number of petroleum leases have been acquired in southern Alberta as near to the point of discovery as possible, and intensive drilling operations are in immediate contemplation.

The department maintains a technical staff of officers at Calgary, who have been furnished with appliances necessary to close petroleum and natural gas wells which are beyond the control of the operators, owing to the release of gas and water under intense pressure. Reference is made to the work of this staff in the report of the inspecting engineer.

COAL MINING LANDS

Regulations for the sale of coal mining lands were withdrawn a number of years ago and all sales made under the provisions of such regulations have now been completed. The total amount of revenue collected from the sale of coal mining lands was $1,565,632.08.

COAL LEASES

The total number of coal mining leases in force at the close of the fiscal year was 773, comprising a total area of 341,758·08 acres, distributed as follows: In Manitoba, one lease, comprising 40 acres; in Alberta, 673 leases, comprising 332,122·23 acres; in Saskatchewan, 97 leases, comprising 7,625·85 acres; in British Columbia, one lease, comprising 1,930 acres; and in the Yukon Territory, one lease, comprising 40 acres.

The total number of coal mining leases issued during the year was 220, comprising 12,552·89 acres. The total revenue collected during the year for rental of coal mining rights was $209,275·21.

ROYALTY ON COAL

Under the regulations governing the issue of leases to mine coal, the royalty is fixed at five cents per ton of 2,000 pounds on the merchantable output of the mine.

The following is a statement showing the amount collected on account of royalty on coal mined from lands in the western provinces, the Northwest Territories, and the Yukon Territory, respectively, during each year since the regulations came into effect:—

Year	Alberta	Saskatchewan	British Columbia	Yukon	Northwest Territories
	$ cts	$ cts	$ cts	$ cts	$ cts
1903-04	56 90	Nil.	Nil.	22 40	Nil.
1904-05	2,822 00	110 70	"	47 00	"
1905-06	2,379 75	47 10	"	569 33	"
1906-07	3,865 26	74 20	"	517 34	"
1907-08	7,621 67	4 30	"	1,543 38	"
1908-09	5,322 39	358 11	"	371 73	"
1909-10	153,559 98	1,672 50	3 00	136 38	"
1910-11	218,932 88	2,184 74	3 50	125 00	"
1911-12	104,894 55	2,034 74	2 78	390 00	"
1912-13	142,997 79	3,145 72	6 95	1,069 11	"
1913-14	147,198 75	2,123 43	19 35	Nil.	"
1914-15	104,489 77	1,880 06	4 90	"	"
1915-16	67,190 17	2,601 52	3 50	"	5 10
1916-17	149,447 82	2,228 08	8 92	"	Nil.
1917-18	144,634 75	1,046 55	Nil.	"	6 00
1918-19	175,687 66	3,193 05	"	"	Nil.
1919-20	181,641 80	2,573 32	"	"	"
1920-21	190,545 80	2,703 41	"	"	"
1921-22	185,436 88	3,309 86	"	"	"

By an Order in Council dated March 16, 1918, provision was made that, owing to the scarcity of fuel in the Yukon Territory, no royalty shall be levied or collected on coal mined in that territory for a period of five years; that is, up to April 7, 1923.

The total revenue derived from coal mining lands on account of purchase price, rental, royalty, and application fees, during the fiscal year, amounted to $402,751.21.

QUARTZ AND PLACER MINING CLAIMS

During the fiscal year 1,468 entries for quartz and 975 entries for placer mining claims were granted by the mining recorders in Manitoba, Saskatchewan, and Alberta, and by the mining recorder for the Northwest Territories. The total revenue received from rentals of quartz mining leases and fees in connection with mineral claims was $37,545.88.

The total revenue received for fees in connection with the administration of the Placer Mining Regulations relating to lands outside of the Yukon Territory was $9,750.

According to the returns from the Yukon Territory during the fiscal year 83 entries for placer mining claims and 2,647 renewals were recorded. The revenue from these sources and from fees for registering documents in connection with mining properties was $46,147.75.

Very satisfactory results appear to have been obtained from a shipment of 2,200 tons of silver-lead ore from the Keno Hill district, in the Yukon Territory, notwithstanding the fact that the cost for the production, transportation, and treatment of such ore amounted to nearly one hundred dollars per ton.

QUARRYING

The number of leases now in force, issued under the provisions of the regulations, is 245, distributed as follows: In Manitoba, 89 leases, comprising 2,681·97 acres; in Saskatchewan, 28 leases, comprising 845·77 acres; in Alberta, 94 leases, comprising 4,145·30 acres; and in British Columbia, 34 leases, comprising 838·98 acres.

The total revenue collected during the fiscal year on account of quarrying and clay leases, including the application fees, amounts to $7,771.93.

POTASH

Under the provisions of the regulations for the disposal of potash rights, the property of the Crown, 45 leases in all were issued, of which number only five leases, comprising an area of 3,082 acres, are now in good standing. The revenue derived from this source during the year was $245.

ALKALI

By an Order in Council dated April 20, 1921, regulations were established for the disposal of all natural accumulations of soluble mineral salts and associated marls, the property of the Crown, in the western provinces and territories. Under these regulations 10 leases have been granted, comprising a total area of 3,266·18 acres, and the revenue derived from the issue of such leases amounts to $1,221.25.

ROYALTY ON GOLD MINED IN THE YUKON TERRITORY

The total amount collected up to March 31, 1922, for royalty on gold, the output of placer mining claims in the Yukon Territory, after deducting the exemption at one time allowed under the regulations, was $4,816,847.27, of which amount $30,774.68 was collected during the last fiscal year. For the purpose of estimating royalty, the gold is valued at $15 an ounce, which is much below its real value.

The actual value of gold produced from placer mining operations in the Yukon Territory, up to March 31 last, might be safely placed at $160,000,000.

DREDGING

Nine leases to dredge for minerals in the beds of rivers in the Yukon Territory are now in force, including a total river stretch of 38·43 miles. The total revenue derived from this source up to March 31, 1922, amounts to $201,387.12, of which amount $168.30 was collected during the fiscal year just closed.

These dredging leases comprise portions of the Yukon, Fortymile, and Klondike rivers.

For the purpose of gold recovery, there are at present six dredges engaged in mining in the Yukon Territory, all of which are being operated by hydro-electric motive power. Two of these dredges are of large capacity, capable of excavating and treating 15,000 cubic yards of gravel per day.

Twenty-nine leases to dredge for minerals in the submerged beds of rivers in the provinces of Manitoba, Saskatchewan, and Alberta are now in force, covering a total frontage of 134 miles. Of these leases, twenty-three are in Alberta and include 111 miles, five in Saskatchewan, including eighteen miles, and one in Manitoba, including five miles. The total revenue derived from this source up to March 31, 1922, amounts to $50,727.47, of which amount $2,032 was collected during the past fiscal year.

HYDRAULIC MINING

The regulations for the disposal of hydraulic mining locations in the Yukon Territory were withdrawn by an Order in Council dated February 4, 1904. The leases then in force were not affected by such withdrawal.

There are still six hydraulic mining locations held under leases comprising a total area of 15·03 square miles.

Rentals, amounting to $155,801.08 have been collected on account of such locations and the amount paid on this account during the fiscal year was $2,369.

TIMBER IN THE YUKON TERRITORY

The total amount of dues collected on account of timber cut in the Yukon Territory during the fiscal year was $9,991.79. One hundred and thirty-eight permits were issued during the year under the authority of which 16,164 cords of wood were cut, the dues on which amounted to $8,812.06.

There are in existence seventy-six timber berths, held under license to cut timber within the territory, covering an area of 164·75 square miles, which licenses were granted prior to May 10, 1906, on which date the regulations governing the granting of such licenses were rescinded, and regulations for the issue of permits were substituted therefor.

The quantity of lumber manufactured from timber cut under license during the year and sold was 1,282¾ feet, board measure, and the number of cords of wood cut was 1,220, from which a revenue of $9,991.79 was derived. Seizure dues, amounting to $568.35 were collected on 1,072·71 cords of wood cut in trespass. This does not include the very large amount of timber and cordwood cut free of dues for mining purposes.

WATER RIGHTS

There are now in force in the Yukon Territory 488 grants to divert water for mining purposes under the provisions of the Yukon Placer Mining Act, aggregating a total of 120,445 miner's inches. During the last fiscal year no water rights were issued.

HOMESTEADS IN THE YUKON TERRITORY

One hundred and six homestead entries have been granted in the Yukon Territory, of which fifty-nine are now in force, comprising a total area of 8,970·56 acres. Patents have been issued for sixteen homesteads.

DOMINION LANDS REVENUE—MINING LANDS AND YUKON BRANCH

STATEMENT A—Revenue obtained from coal and other minerals disposed of in the western provinces and territories, also collections made on account of timber, etc., for the fiscal year:—

	$ cts.		$ cts.
Quartz acreage sales	325 64	Free certificates, export of gold	4 50
Dominion lands sales	1,664 16	Stone quarry	7,771 93
Coal lands sales	472 76	Registration and office fees	1,004 80
Coal mining	4,256 50	Homestead fees	20 00
Coal royalty	188,746 74	Hay, Yukon	22 40
Coal rental	209,275 21	Interim receipt account	132 50
Rental, Yukon	5,419 78	Tar sands	900 00
Timber dues, Yukon	9,991 79	Sand, stone and gravel	39 00
Mining fees	93,333 63	Petroleum	487,983 67
Hydraulic leases	2,569 00	Potash	245 00
Dredging leases, Western Provinces	2,032 00	Quartz rental	110 00
Dredging leases Yukon	168 30	Rent of equipment	300 00
Gold export tax	30,774 68	Gypsum	55 00
Amber lease	238 00	Alkali	1,221 25
		Miscellaneous	11 00

STATEMENT B—Total amount of revenue collected at each agency, including the Yukon Territory, for the fiscal year:—

	$ cts.		$ cts.
Battleford	1,224 48	Swift Current	6,610 83
Calgary	239,331 01	Fort Smith, N.W.T.	104,594 40
Dauphin	12,896 43	Winnipeg	17,350 32
Edmonton	215,142 72	Dawson, Gold Commissioner's Office	47,440 36
Grande Prairie	30,454 77	Dawson, Crown Timber Office	8,815 69
Kamloops	743 55	Dawson, Royalty C. Office	30,714 84
Lethbridge	166,164 14	Dawson, Comp. Office	4 50
Moose Jaw	9,996 22	Dawson, Dominion Lands	4,465 22
New Westminster	56,446 33	Whitehorse, Min. Rec.	1,763 43
The Pas, Manitoba	15,763 80	Whitehorse, Crown Timber Office	1,198 50
The Pas, Saskatchewan	4,236 75	Whitehorse, Royalty Collector's Office	59 84
Peace River	60,384 51	Whitehorse, Dom. L. Office	2,713 72
Prince Albert	8,962 80		
Revelstoke	524 40		
Saskatoon	1,085 68		

REPORT OF THE GOLD COMMISSIONER AND CROWN TIMBER AND LAND AGENT, DAWSON

The revenue from the Gold Commissioner's office and Crown Timber and Land Agent's offices for the year was $59,971.27, exclusive of rentals paid direct to the department at Ottawa. This is an increase of $8,103.54 over last year.

PLACER GOLD MINING

The export tax was paid on 82,065.79 ounces of gold during the year, which for practical purposes may be considered the amount mined. The past summer was the the driest of which there is any record in the history of the camp, and the consequent shortage of water seriously affected the output, especially from the hydraulic mines.

YUKON GOLD COMPANY

This company's operations were on a slightly reduced scale compared to the previous year chiefly on account of the shortage of water referred to, and also on account of a shortage of labour. One dredge was in operation on Gold Run creek during a dredging season of 138 days from May 17 to October 2. A total of 556,957 cubic yards of material was handled by this dredge.

Ten hydraulic mines were operated at the following points: Oro Fino Hill, Lovett Hosford, Cheechaco Hill, Fox Gulch, Jackson Gulch, Adams Hill, Monte Cristo, Gold Hill, American Gulch, Trail Gulch. A total of 1,069,468 cubic yards was washed.

The hydro-electric power plant of the company on the Twelve-mile river was operated and furnished throughout the season an adequate supply of power. The daily average of men employed during the mining season (April to October) was as follows: hydraulic mines, 54; dredges and thawing, 47; ditch, 24; otherwise employed, 43; total, 168.

BURRALL AND BAIRD, LIMITED

This company, the successor to the Canadian Klondike Mining Company, Limited, operated dredges Canadian Nos. 2 and 4 in the Klondike Valley on Hydraulic Mining Leasehold No. 18, and Dredging Leasehold No. 24. No. 2 Dredge operated from May 10 to November 30 and handled 1,539,795 cubic yards. No. 4 operated from May 12 to November 7 and handled 1,245,000 cubic yards. An average of sixty men were employed by this company.

The pumping plant of the company near the mouth of Hunker creek was in operation from May 10 to September 19 and furnished 500 inches of water, which was used by Mr. M. H. Jones in his hydraulic operations on Last Chance creek.

THE NEW NORTH WEST CORPORATION, LIMITED

This company is the successor of The North West Corporation, Limited, and is the holder of 1,020 placer claims on creeks in the Indian river watershed. A dredge of 7½ cu. ft. capacity was operated on Nos. 13-A to 20 Below Lower Discovery on Dominion Creek and 393,700 cubic yards of material were dredged. Their No. 2 Dredge referred to in my report last year as being installed on Lower Dominion Creek, was made ready for digging on August 1 and during the remainder of the season handled 342,930 cubic yards of material.

The cold water thawing process referred to in my former reports has proved a complete success, but supplementary steam plants are found necessary during the early months of the season. An average of 112 men was employed by this company.

TITUS DREDGING COMPANY

The dredge operated by this company on Highet creek handled 400,000 cubic yards of material. An average of twenty men was employed in its operation.

OTHER PLACER OPERATIONS

In addition to what may be termed the large scale operations referred to, many individuals and miners working in partnership were engaged in placer mining throughout the various camps of the district. The shortage of water interfered seriously with these operations.

Mr. Nevill A. D. Armstrong and associates carried on extensive prospecting operations on Russell creek, a tributary of the MacMillan river. A Keystone drill was transported to that creek and was in operation a part of the season. The results obtained were satisfactory and further extensive drilling operations will be carried on there this coming season.

LODE MINING

Activity in lode mining has now centred on the silver lead properties on Keno Hill and vicinity. The smelter returns from the ores shipped last year by the Keno Hill, Limited, were very satisfactory, and the same company have now at Mayo,

awaiting shipment on the opening of navigation, over 3,100 tons of high grade ore. In addition to mining this ore they have carried on extensive development work throughout the last year; 1,500 feet of drifts, winzes, and cross-cuts were driven. On the "Sadie" and "Friendship" claims 180 feet of shafts, drifts, and cross-cuts were driven in development work. The men employed were as follows: In the mine, 41; power plant, 4; furnishing wood for plant, 8; transportation, 25.

Mr. F. W. Bradley and associates have acquired extensive interests in the camp and have devoted their energies almost entirely to development work, no attempt being made to mine ores for shipment. Twenty-five men were employed in these operations.

The Slate Creek Mining Company on the "Fisher" and "Rondo" claims, near Lightning creek, have carried on extensive development work on their properties with very satisfactory results.

In general it is safe to say that the work accomplished by the above companies and others during the past year has immeasurably increased the confidence of mining men in the future of the camp.

WOOD, TIMBER, AND COAL

One hundred and fourteen permits to cut wood and timber were issued during the year. The quantity of timber cut under permits during the year on which dues were paid was 343,300 feet, board measure. Number of cords cut under authority of permits during the year was 14,218; number of cords cut without authority of permit on which seizure dues were paid, 1,072; number of feet board measure cut and sold under license during the year, 1,282.

The Five Fingers Coal Company were not able to make satisfactory arrangements with the transportation company to transfer their coal to Dawson, and as a result the local market was not properly supplied. Satisfactory arrangements have, however, been perfected for next season.

AGRICULTURE

The season being exceptionally dry, the crop of hay and grain cut green for fodder was not up to usual standard. The potato crop, however, which is of very considerable importance, was of good quality. The experiment of bringing in seed grain and fertilizer and selling the same to the farmers at cost has been satisfactory and has been much appreciated by the farming community.

HOSPITALS AND PUBLIC HEALTH

The health of the people has been exceptionally good, no epidemics having occurred. St. Mary's Hospital at Dawson has continued to render splendid service, as well as the General Hospital at Whitehorse, each serving their respective territories in a most satisfactory manner.

EDUCATION

Owing to lack of funds it was necessary to reduce the teaching staff in the Dawson Public and High Schools. A fully paid Government school was provided at Mayo.

LAW AND ORDER

The Royal Canadian Mounted Police have maintained order in their usual efficient manner. Patrols were maintained to outlying creeks at frequent intervals.

REPORT OF INSPECTING ENGINEER OF MINES, O. S. FINNIE

Largely owing to increased United States competition, unfavourable weather conditions, and general business depression, there was a decrease in the production of coal in Alberta of about 14 per cent during 1921, as compared with the previous year. In Saskatchewan the production was practically the same as in 1920.

For purposes of comparison the schedule below indicates the output from these provinces for the past two years. It is divided into three classes: coal subject to royalty on Dominion lands, coal subject to royalty on School lands, and coal not subject to royalty.

Province	Calendar year	Output subject to royalty		Not subject to royalty	Total
		Dominion lands	School lands		
		Tons	Tons	Tons	Tons
Alberta	1920	3,631,672	523,318	2,752,773	6,904,935
Saskatchewan	1920	41,798	45,952	247,372	346,328
Alberta	1921	3,282,838	312,962	2,331,470	5,927,270
Saskatchewan	1921	46,142	48,480	247,190	341,812

The following schedule shows the number of mines in Alberta and Saskatchewan during the years, 1920 and 1921, subject to royalty on Dominion and School Lands and those not subject to royalty, also the total number operated in each year.

Province	Calendar year	Number of operating coal mines subject to royalty		Mines not subject to royalty	Total mines
		Dominion lands	School lands		
		No.	No.	No.	No.
Alberta	1920	177	16	76	269
Saskatchewan	1920	58	10	4	72
Alberta	1921	179	16	76	271
Saskatchewan	1921	57	6	15	78

It will be noted that there was a reduction of output in Alberta of nearly one million tons. The decrease in the different fields was approximately as follows: Taber field, 67 per cent; Lethbridge field, 8 per cent; Crowsnest pass, 28 per cent; Drumheller field, 18 per cent; Brazeau field, 5 per cent.

The mines in southern Alberta, including those in the Taber, Lethbridge, and Drumheller fields, were inspected during the year.

There was a considerable amount of development work in the Sheep Creek area, but owing to lack of transportation facilities no coal was shipped out.

At the end of the fiscal year, Mr. J. W. McIntosh, one of the mining inspectors stationed at Calgary, retired. On May 1, 1921, Mr. R. J. Lee was appointed a mining inspector and assigned to duty in Saskatchewan, with headquarters at Estevan.

All the operating mines in Saskatchewan were inspected and thirty-four surveys were made. Experiments were conducted for the purpose of determining what steam power could be generated from Souris lignite. It is hoped that the results obtained will be the means of creating a greater demand for Saskatchewan coal.

During the year the petroleum engineer's division was called upon to render advice and assistance to numerous operators in addition to the routine inspections and reports.

The petroleum engineer himself made an extended inspection in the Northwest Territories and Vancouver fields, while the petroleum and natural gas inspector in addition to assisting with the usual inspections was engaged in superintending the mudding and cementing operations at Peace River well No. 2, also repairing defective gas wells at Medicine Hat.

The following special undertakings were completed:—

1 A system of graphic well logs built of strips of wood.
2 A peg model of the Peace River field.
3 A relief model of the Turner Valley oil field.
4 A map showing the gas fields of Western Canada.
5 A manual for the use of oil and gas operators.
6 A system for collecting and analysing water samples from oil and gas wells.

PRODUCTION OF NATURAL GAS AND PETROLEUM IN WESTERN CANADA DURING 1921

Natural Gas

Bow Island Gas Field

Canadian Western Natural Gas, Light, Heat and Power Company—2,759,727 cubic feet.
Town of Bow Island—Nominal.

Turner Valley Field

Royalite Company, January to March, 1922—214,370,000 cubic feet.
Southern Alberta Oil Company—Nominal.

Medicine Hat Field

City of Medicine Hat—1,652,191,000 cubic feet.

NOTE—Gas was also produced in the Medicine Hat field by the Redcliff Gas Company, the Ogilvie Flour Mills, the Canadian Pacific Railway, the Alberta Clay Products, and others, but a record of their production is not available.

Wetaskiwin Field—Nominal.

Petroleum

Turner Valley Field

Royalite Company, February, 1921, to March, 1922—30,415 gallons.
Sheep River Oil Company, operating only September to December, 1921—15,015 gallons.
Canada Southern Oil, June to December, 1921—12,005 gallons.
Illinois Alberta Oil Company—Nominal.
Southern Alberta Oil Company, December, 1920, to December, 1921—204,750 gallons.
Alberta Southern Oil Company, December, 1920, to December, 1921—47,250 gallons.

Northwest Territories

Northwest Company at Fort Norman—Nominal.

Natural Gasolene

Turner Valley Field

Royalite Oil Company, February, 1921, to March, 1922—105,689 gallons.

BORING OPERATIONS

Boring operations were commenced on eight petroleum and natural gas leases, during the year 1921-22 and ten bore holes were officially abandoned. One well reported new flows of gas. No new production of oil was reported. Details of operations during year are submitted in the following schedule:—

DETAILS OF OPERATIONS APRIL, 1921-MARCH, 1922

Province	Number drilling during year	Commenced this year	Abandoned this year	Producing gas	Producing oil	—
Alberta	24	5	5	57	6	Does not include gas wells capped
Saskatchewan	3	...	1	...	...	
Manitoba	5	...	3	...	...	
British Columbia	2	...	...	...	...	Railway Belt only.
Northwest Territories	6	4	1	...	1	

DETAILS OF OPERATIONS

Northern Alberta

Peace River Field.—Three companies operated during the past year. Two of these met with losses because very heavy flows of water and natural gas were penetrated, and gushing out with great force completely wrecked the surface equipment. There are now eight bore holes in the Peace River field, where the water horizons have not been sealed off and from which large columns of natural gas are being continuously wasted. The department's mudding and cementing equipment was being used at well No. 3 of the Peace River Oil Company during the summer and autumn, and a summary of the operations will be found under another heading.

Pouce Coupé Field.—The Northwest Company were drilling a well on section 26, township 80, range 13, west of the 6th meridian, and reached a depth of 1,730 feet during the year. A flow of 10,627,200 cubic feet of gas per 24 hours was penetrated at a depth of 1,676 feet, and the gauge pressure was found to be 700 pounds to the square inch. Below the gas at a depth of 1,730 feet salt water came into the well and the company found it advisable to temporarily plug off the gas and water with mud fluid, and suspended operations until the spring of 1922.

McMurray Field.—The Alcan Oil Company drilled a well to the depth of 262 feet on section 28, township 96, range 10, west of the 4th meridian, some six miles east of the Athabasca river. The "tar sands" were penetrated immediately below the surface beds and at a depth of 245 feet the sand appeared to contain a more fluid bitumen which slowly seeped into the drill hole. However, the oil was too viscous to either bail or pump of the drill hole. It is the company's intention to prospect further in this district.

Central Alberta

Birch Lake District.—The J. R. Talpey syndicate "spudded in" a well on section 14, township 50, range 12, west of the 4th meridian. A depth of 750 feet was attained before operations were suspended for the winter.

Czar District.—The Northwest Company's bore hole on section 17, township 39, range 7, west of the 4th meridian, which had been drilled to a depth of 3,500 feet, and had penetrated well into the Palaeozoic Limestones, was abandoned as a "dry hole."

Monitor District.—The Talpey Syndicate began a bore hole on section 5, township 35, range 4, west of the 4th meridian.

The West Regent Oil and Gas Company using the only rotary rig in central Alberta on section 19, township 34, range 4, west of the 4th meridian, attained a depth of some 2,000 feet before operations were suspended for the winter.

The Mud Butte Oil Company in section 29, township 32, range 4, west of the 4th meridian, attained a depth of 500 feet with a diamond drill before operations were suspended for the winter.

Misty Hills District.—The Northwest Company drilling in section 24, township 32, range 4, west of the 4th meridian, were delayed most of the year by the destruction of their rig by fire.

Foothills

Coalspur District.—The Northwest Company have recently "spudded in" a well on section 3, township 49, range 21, west of the 5th meridian.

Turner Valley Oil and Gas Field.—After the destruction of some of the equipment of the Calgary Petroleum Products Company, the operations on section 6, township 20, range 2, west of the 5th meridian, were taken over by the Royalite Company. The gasolene absorption plant was reconstructed along more elaborate lines, a compressor plant was installed and a 6-inch pipe line laid from the plant to connect with the Calgary Bow Island line of the Canadian Western Natural Gas, Light, Heat and Power Company. The gas is drawn from wells Nos. 1 and 2 under 6 inches of vacuum into the compressors and is discharged therefrom into the absorption plant at a pressure of 120 pounds per square inch. The gasolene is extracted and the gas, after being metered, is conducted through the 6-inch pipe line to be finally consumed in Calgary. The daily production of gas approximates 2,000,000 cubic feet.

A production of oil is maintained by the Southern Alberta wells Nos. 1 and 2, the Alberta Southern well No. 1, the Canada Southern well No. 1, the Sheep River Oil Company's well No. 1 and the Illinois-Alberta Oil Company's well No. 1.

No. 3 well of the Royalite Company, which is being drilled, is constantly striking new flows of gas.

Willow Creek District.—The Alberta Associated well (Christie No. 1) on section 7, township 16, range 2, west of the 5th meridian, was officially abandoned this year.

The Willow Creek well on section 29, township 14, range 2, west of the 5th meridian, being drilled by the Northwest Company, has been delayed by drilling difficulties.

Pincher Creek District.—Twin Butte well No. 1 of the Northwest Company drilling to a depth of 2,780 feet was abandoned as a dry hole in February, 1922. Twin Butte well No. 2 of the Northwest Company was abandoned in March, 1922, at a depth of 4,370 feet.

Southern Alberta Prairie

Bow Island Gas Field.—This important field, which has been rapidly declining during the past few years, had in November, 1921, an average closed pressure for the working wells of 220 pounds. No new drilling has been undertaken in the field.

Medicine Hat-Redcliff Field.—No new development took place during the year. Pressure tests indicate a decline of 25 to 30 pounds in gas pressure for the year.

Saskatchewan

Drilling operation were conducted in Saskatchewan by the Northwest Company on section 9, township 1, range 27, west of the 3rd meridian, and on section 7, township 39, range 22, west of the 3rd meridian.

The Rush Lake well of the Northwest Company, located on section 30, township 19, range 11, west of the 3rd meridian, was abandoned at a depth of 2,325 feet, as a dry hole.

British Columbia

Inspections were made and reports furnished of drilling operations which were being conducted during the year on the Fraser delta in the vicinity of Vancouver.

Northwest Territories

An investigation was made of the drilling operations in the Northwest Territories. At the time of the inspection (July) the Northwest Company was "rigging up" preparatory to drilling on four locations in the vicinity of Discovery well in the Fort Norman area. The Fort Norman Oil Company had "spudded in" on a lease six miles down stream from Discovery well.

After carefully investigating conditions at the Discovery well the general conclusion arrived at was that the well would probably produce a high grade petroleum at a rate of less than eight barrels per day.

The bore hole at Windy Point on Great Slave lake which was being sunk by the Northwest Company was operating at a depth of 1,300 feet in a salt formation. The well was subsequently abandoned at a depth of 1,806 feet in Lower Palaeozoic measures. No oil or gas was obtained.

MUDDING AND CEMENTING OPERATIONS

At the request of the Canada Cement Company the branch supervised the work of repairing and putting in a tubing and packer in their No. 3 well at Medicine Hat. The work was successfully accomplished and the water which had been seeping into the well was effectively sealed off from the gas sands.

The operations conducted, with a view to ascertaining the advisability of further work, on No. 1 well of the Canada Cement Company at Medicine Hat were also supervised. This work was completed during February, 1921. The department's mudding and cementing equipment had been transferred to Peace River in July last year. Preliminary operations were begun on well No. 3 of the Peace River Oil Company. Owing to the great difficulty and expense that would have attended the shipping of clay suitable for making mud fluid, an attempt was made to cement the well without first killing agitation by mud fluid. It was hoped that the casing was sufficiently tight to prevent any movement of gas in the well. After the operations were completed, it was soon discovered that the attempt at cementing without mud fluid was not successful. As the season was then too short to begin new work, it was decided to suspend operations until the spring of 1922.

REPORT OF THE CONTROLLER, TIMBER AND GRAZING LANDS BRANCH, B. L. YORK

The total revenue derived from timber, grazing, and hay lands during the fiscal year amounted to $723,322.81. This is a decrease of $83,796.42 as compared with the revenue for the previous year, and is the result of the generally adverse conditions.

TIMBER

Statements A, B, and C, showing the total revenue from the timber agencies, and other sources of revenue by agencies, also the statements from the Crown timber agents at Calgary, Edmonton, Prince Albert, Winnipeg, Kamloops, New Westminster, and Revelstoke, showing the revenue collected within their respective agencies, and other information are appended hereto.

The report of the Superintendent of Dominion Timber Agencies, and the report of the inspectors of ranches located at Calgary, Moose Jaw, Prince Albert, and Peace River are also attached.

The revenue from timber, grazing, and hay lands received at the Crown Timber agencies, and also the number of mills operated under license, and the number of mills operated under permit are as follows:—

Agency	Total revenue	Number of mills operating under license	Number of mills operating under permit
	$ cts		
Calgary	43,019 42	11	16
Edmonton	113,681 24	27	95
Prince Albert	88,766 44	31	51
Winnipeg	136,690 99	27	47
Kamloops	42,796 16	10	—
New Westminster	153,000 38	30	—
Revelstoke	22,396 50	11	—

The returns of operations show the quantity of timber and also other material manufactured and sold under license to be as follows:—

—	Manufactured	Sold
Sawn lumber, feet board measure	188,227,507	200,568,835
Railway ties	307,397	255,090
Laths	25,262,905	30,222,808
Shingles	.....	16,000
Shingle bolts, cords	25,410	27,634
Mine timber, lineal feet	971,623	1,063,917
Piling, lineal feet	82,434	89,979
Mine ties	628	628
Telephone poles	28,036	.....
Cordwood, cords	1,012	974
Lagging, cords	1,245	1,145
Fence posts	115,884	.....
Boom timber, lineal feet	14,579	.....

The total quantity of timber and also other material manufactured and sold under permit and portable saw-mill berths is as follows:—

	Manufactured	Sold
Sawn lumber, feet board measure	41,972,406	35,680,520
Railway ties	214,492	214,152
Shingles	597,250	581,250
Laths	307,950	282,950
Mine ties, lineal feet	172,065	165,367
Mine timber, lineal feet	3,578,775	2,576,660
Telephone poles	2,232	1,607
Fence posts	44,873	56,139
Fence rails	1,168	.....
Cordwood, cords	2,241	3,128

The area of lands held under license and permit in the provinces of Manitoba, Saskatchewan, Alberta, and British Columbia is as follows:—

	Under license	Under Permit
	sq. miles	sq. miles
Manitoba	991·47	396·05
Saskatchewan	1,042·77	119·37
Alberta	1,835·32	127·04
British Columbia	1,727·68	9·50
	5,597·24	651·96

During the year 91 berths were granted, as follows: 2 license berths, 35 portable saw-mill berths, 38 cordwood berths, 15 permit and firekilled berths, 1 pulpwood berth.

GRAZING

There were 6,518 grazing leases in force, covering an area of 6,341,952 acres, made up as follows: Manitoba, 135,837 acres; Saskatchewan, 2,911,365 acres; Alberta, 2,879,504 acres; British Columbia, 415,246 acres. During the year 581 new leases were issued.

STATEMENT A—Revenue for fiscal year 1921-22

Timber	$573,479 98
Grazing	101,175 22
Hay	18,829 25
Registration fees	278 00
Fireguarding dues	24,056 76
Improvements	916 70
Scaling fees	4,426 65
Scale books	41 25
License fees	118 00
Sundries	1 00
Total	$723,322 81

STATEMENT B—Revenue from Timber for fiscal year 1921-22

Bonus	$ 20,631 12
Rent	83,339 81
Royalty	216,044 10
Permit fees, dues and rentals	238,497 15
Seizure dues	14,967 80
Scaling fees	4,426 65
Scale books	41 25
License fees	118 00
Total	$578,065 88

STATEMENT C—Revenue from Grazing, Hay, Registration Fees, Improvements and Sundries for fiscal year 1921-22

Grazing	$101,175 22
Hay	18,829 25
Registration fees	278 00
Fireguarding dues	24,056 76
Improvements	916 70
Sundries	1 00
Total	$145,256 93

REPORT OF SUPERINTENDENT OF DOMINION TIMBER AGENCIES, E. F. STEPHENSON

STATEMENT A—Summary of work performed and revenue collected in the respective Crown Timber offices, during the fiscal year.

Agency	Timber and Grazing								Forestry				Schools Lands				Revenue
	Bonus	Ground rent	Royalty on sales	Timber permits issued	Timber Seizures	Hay Permits	Grazing rentals	Sundries	Permit dues and rentals	Seizures	Grazing rentals	Hay permits	Timber permits issued	Seizures	Hay permits	Grazing Permits	Sundries	
																		$ cts.
Battleford	..	....	....	286	17	456	425	16	193	1	125	37	12	1	280	423	6	19,115 61
Calgary	..	44	37	136	14	217	578	11	272	2	237	13	4	1	322	1157	11	91,455 79
Dauphin	..	....	....	290	27	450	64	....	1110	52	147	264	....	....	270	72	3	18,551 02
Edmonton	..	44	49	1010	198	951	304	146	67	38	52	27	38	21	472	475	29	149,643 90
Grande Prairie	1	....	....	427	3	176	108	96	..	....	....	....	....	....	64	..	....	7,213 47
Kamloops	3	89	49	319	4	18	480	46	24	....	17	23	....	....	..	..	....	49,270 59
Lethbridge	..	....	....	11	12	45	946	5	451	15	294	2	....	....	37	433	5	41,802 17
Moose Jaw	..	....	....	3	....	525	1046	5	144	1	183	97	....	....	510	980	3	34,475 37
New Westminster	11	225	223	174	12	..	....	203	....	....	....	....	....	....	..	..	....	49,746 81
Peace River	..	....	....	447	....	292	162	1	....	....	1	5	....	....	86	51	1	10,219 27
Prince Albert	4	42	64	599	69	969	360	3	875	13	75	114	45	6	298	296	7	15,986 02
Revelstoke	2	97	23	95	....	....	....	36	....	....	....	....	....	....	..	..	....	22,048 85
Saskatoon	..	....	....	51	2	390	168	3	136	13	95	105	3	....	511	750	3	20,170 48
Swift Current	..	....	....	90	2	211	1436	6	315	10	436	11	1	....	152	714	5	46,328 41
Winnipeg	..	73	60	1095	80	721	....	60	206	8	194	137	83	16	662	..	1	100,489 29
Total	21	614	505	5033	438	5421	6077	637	3793	153	1846	833	186	47	3644	5849	74	876,297 04
Previous year	17	518	618	7088	323	8786	6387	1405	4723	123	1818	908	328	75	5257	5900	107	1,039,971 73

N.B.—Revenue exclusive of payments made direct to Department on account of respective Agencies.

STATEMENT B—Manufacture and Sale of Timber Products Cut by Holders of Timber Berths on Dominion Lands and School Lands under Yearly License and Permit during the fiscal year ended March 31, 1922

Agency	Lumber			Lath			Railway ties	Shingle bolts	Round timber	Saw Logs		
	Manufactured	Sold	On hand	Manufactured	Sold	On hand				Pieces cut	Manufactured	On hand
	Ft. B.M.	Ft. B.M.	Ft. B.M.					Cords				
Calgary	14,492,474	10,635,249	13,440,033	1,485,250	1,876,900	99,250	144,816		765,407	272,121	353,624	235,680
Edmonton	16,121,626	17,581,553	6,070,601	4,357,100	5,197,703	443,347	185,026		80,000	259,784	226,377	274,562
Kamloops	1,510,78	1,5 0,78					2,997	608	137,58	13,432	13,432	
New Westminster	77,009,320	77,009,320					43,594	26,733	47,140	112,762	112,762	
Prince Albert	52,770,670	65,022,771	21,470,695	15,032,817	17,216,767	2,691,950	33,696			506,018	791,490	514,180
Revelstoke	9,673,065	9,673,065						2,869	3,956	80,501	80,942	3,479
Winnipeg	16,649,586	19,136,076	7,005,594	4,387,738	5,931,438	134,400	1,990			121,206	311,054	260,154
Total	188,227,707	200,568,845	47,986,923	25,262,905	30,222,808	3,368,947	412,119	30,210	1,034,084	1,365,824	1,889,681	1,288,055
PERMIT BERTHS												
Calgary	1,464,896	1,431,628	949,416	16,640	25,813	12,946			2,840,891	16,640	25,813	12,946
Edmonton	13,397,220	11,016,003	6,592,620	307,950	282,950	25,000	159,356		276,499	273,043	241,870	150,479
Kamloops	7,003,44	7,003,44					42,616	100	21,231			
New Westminster	5,742,979	5,742,979					19,951	5,081	45,006			
Prince Albert	6,684,049	5,057,796	3,725,027				12,780		26,587	88,822	136,935	10,632
Revelstoke	773,490	773,490					10,278	870	1,791			
Winnipeg	6,906,327	4,655,179	4,307,786				47,170			134,910	141,017	92,038
Total	41,972,406	35,680,520	15,574,849	324,590	308,763	37,946	292,151	6,051	3,218,005	513,415	545,635	266,095
Grand total	230,199,913	236,249,365	63,561,774	25,587,495	30,531,571	3,406,893	704,270	36,261	4,252,089	1,879,239	2,435,316	1,554,150
Previous year	321,955,830	278,707,558	71,394,249	30,890,030	23,739,280	7,731,650	1,328,518	37,646	5,590,149	3,354,415	3,801,699	4,612,701

STATEMENT C—Timber material covered by Permits issued at the respective Agencies, principally to settlers during the fiscal year

Agency	Lumber and logs	Fence rails	Poles	Fence posts	Cord-wood	Rail-way ties	Poles, tele-graph and tele-phone	Round timber	Shingle bolts
	Ft. b.m.		No.		Cords	No.	No.	lin. ft.	Cords
Battleford	1,324,831	36,030	7,110	31,344	1,400	...	...	...	.....
Calgary	569,180	13,685	4,460	14,730	5,507	1,250	12,500	10,150,000	....
Dauphin	3,117,456	4,060	5,470	47,140	14,413	...	...	...	.....
Edmonton	9,193,451	49,337	95,833	209,241	3,372	358,730	1,050	660,025	.....
Grande Prairie	2,434,398	909,520	91,998	95,060	534	...	...	...	.....
Kamloops	7,650,753	2,115	757	67,585	5,412	68,491	22,131	...	105
Lethbridge	137,151	4,467	670	39,591	3,809	.....	.....	599,718	.....
Moose Jaw	9,840	900	500	7,975	1,003	.....	.....	.....	.....
New West-minster	5,373,015	...	...	3,000	748	19,951	45,006	.....	4,895
Peace River	2,760,298	441,149	85,538	103,255	5,703	7,100	1,945	42	.....
Prince Albert	15,029,461	202,048	26,757	271,732	36,278	15,749	22,131	...	...
Revelstoke	773,490	.....	.....	57,470	653	10,278	1,791	...	870
Saskatoon	258,589	100	....	11,285	1,113	.....	...	....	.....
Swift Current	52,130	7,680	1,405	23,110	2,739	...	...	...	.....
Winnipeg	7,703,499	14,900	6,602	74,365	35,023	52,554	2,000	470	.....
Total	56,407,542	1,775,989	327,060	1,056,890	117,706	534,148	108,552	11,410,259	5,870
Previous year	105,714,310	3,594,248	472,628	2,252,376	90,561	1,052,942	194,957	2,658,327	7,886

STATEMENT D—Number of Hay Permits issued at the respective Crown Timber offices and the amount of hay covered thereby for the fiscal year

Agency	Dominion Lands		School Lands		Forestry Lands		Revenue from Hay
	Permits issued	Hay	Permits issued	Hay	Permits issued	Hay	
	No.	Tons	No.	Tons	No.	Tons	$ cts.
Battleford	456	5,389	280	3,252	35	1,789	3,264 50
Calgary	217	3,636	322	6,128	13	302	2,873 36
Dauphin	450	5,593	250	4,360	264	4,450	3,909 48
Edmonton	951	7,472	472	3,982	27	825	4,282 30
Grande Prairie	176	1,563	64	503	.....	.....	624 75
Kamloops	18	80	.....	.....	23	275	105 25
Lethbridge	45	386	37	313	2	15	151 40
Moose Jaw	525	7,491	510	6,849	97	3,166	4,215 40
New Westminster	.....	.....	.....	.....	.....	.....	.....
Peace River	292	3,652	86	1,161	5	300	1,547 14
Prince Albert	969	8,451	298	2,692	114	3,000	3,728 71
Revelstoke	.....	.....	.....	.....	.....	.....	.....
Saskatoon	399	5,400	511	7,214	105	3,475	4,465 00
Swift Current	211	7,132	152	2,019	11	241	996 40
Winnipeg	721	7,258	662	7,634	137	2,703	5,089 62
Total	5,430	63,993	3,644	46,107	833	20,541	35,253 31
Previous Year	9,537	125,610	5,157	78,075	965	26,107	43,476 40

REPORT OF THE SUPERINTENDENT, ORDNANCE AND ADMIRALTY LANDS BRANCH, JOS. P. DUNNE

During the fiscal year there were no public sales of Ordnance lands held, but, with respect to lands previously sold or occupied under leases with the option of purchase, eighteen whole lots and six part lots, situated in the several localities hereunder mentioned, and in the accompanying statement lettered A, have been paid in full and letters patent issued.

Nepean—Nine lots forming part of a subdivision of a portion of township lots 39 and 40, 1st concession, Ottawa Front, now within the limits of the city of Ottawa, were sold at a valuation to the party in possession, in accordance with the provisions of the Ordnance and Admiralty Lands Act, the party in question having been in occupation of the land for many years, with the consent of the Crown.

Ottawa—Lots in this locality are occupied by tenants under terms and conditions embodied in the original leases granted by the Imperial authorities. One of such conditions being that the tenant may convert his leasehold into freehold at any time on payment in cash of the purchase price placed on the land. During the fiscal year eight whole lots and four part lots were redeemed and letters patent issued therefor.

Port Maitland.—One lot forming part of the reserve situated on the westerly side of the Grand river at this point and which has been occupied under lease with the option of purchase was redeemed in full and letters patent issued.

Sorel—Two small parcels of land, known as "Continuations", situated in the parish of St. Pierre de Sorel and which have been occupied for many years were sold to the party in possession and letters patent issued.

South Crosby—A small parcel of land, being a portion of lot 17, 8th Concession, in this township, forming part of the Canal reserve, and being no longer required for the purposes of the canal was transferred to this Department to be sold at a valuation to the party in possession, which was accordingly done and letters patent issued.

RAILWAY LANDS DIVISION

During the fiscal year, the activities of this division, in connection with the railway land subsidy work consisted chiefly in the auditing of the land accounts of the different railway companies which received a land subsidy from the Crown in the Prairie Provinces. Much correspondence passed between the railway officials and this branch in comparing and checking the result of this audit and adjustment.

Included in work relative to railway companies was a large volume of correspondence with the Grand Trunk Pacific Railway Company, the Edmonton, Dunvegan and British Columbia Railway Company and the Alberta and Great Waterways Railway Company in connection with the administration of the lands required for right of way purposes for these railways.

The following statement shows the acreage patented for railway subsidy and right of way purposes from this Branch during the fiscal year:—

Canadian Northern Railway Company	2,231.03 acres
Manitoba Southwestern Colonization Railway Company	209.63 "
Alberta and Great Waterways Railway Company	6.50 "
Edmonton, Dunvegan and British Columbia Railway Company	295.97 "
Total	2,743.13 acres

STATEMENT A—Number of lots and part lots sold or redeemed during the fiscal year

Locality	Number of lots sold or redeemed	Amount of consideration or purchase money	Amount received on account during fiscal year	Remarks
		$ cts.	$ cts.	
Nepean	9 lots	3,925 00	3,925 00	In full
Ottawa	pt. lot	95 00	95 00	In full
"	pt. lot	91 98	36 78	Balance of purchase money
"	pt. lot	100 00	100 00	In full
"	1 lot	400 00	.....	Paid for previously 15-4-93
"	1 lot	370 33	.....	"
"	1 lot	74 16	.....	"
"	1 lot	83 33	.....	"
"	1 lot	83 33	.....	"
"	1 lot	83 33	.....	"
"	1 lot	83 33	.....	"
"	1 lot	400 00	.....	"
"	pt. lot	100 00	100 00	In full
Port Maitland	1 lot	67 60	67 60	In full
Sorel	2 pt. lots	150 00	150 00	In full
South Crosby	pt. lot	133 32	133 32	In full
	.....	6,240 71	4,607 70	

STATEMENT B—Localities where Ordnance Lands are situated on account of which monies have been received during the fiscal year

Locality	Amount
	$ cts.
Amherstburg	2 00
Anlac, N.B. (Westmorland Point)	64 00
Burlington Beach	60 00
Burritts Rapids	4 00
Carillon	0 40
Chaffey's Locks, Ont	133 32
Edmunston, N.B.	1 00
Elmsley	7 60
Fort Erie	2 00
Grand Falls, N.B	69 60
Grenville	2 00
Kingston	206 50
Montreal	100 00
Nepean	2 00
Niagara Falls	2 00
Old Sly's Rapids (Montague, Ont.)	4 00
Ottawa	6,186 13
Owen Sound	46 50
Port Maitland	99 18
Prescott	1 00
Quebec	830 00
Richelieu	150 00
Sarnia	200 00
Smiths Falls	50 50
Sorel, Que	4 00
St. Andrew's, N.B	1 00
Wolford	101 75
	8,330 48
Fees	116 00
Total	8,446 48

STATEMENT C—Receipts each month of the fiscal year; classified as fees, rents or interest equivalent to rent, and principal

Month	Fees	Rent or interest	Principal	Total
	$ cts.	$ cts.	$ cts.	$ cts.
1921				
April	20 00	134 50	.....	154 50
May	6 00	712 59	4,040 00	4,758 59
June	8 00	185 60	.....	193 60
July	10 00	364 10	95 00	469 10
August	3 00	54 47	36 78	94 25
September	13 00	956 89	250 00	1,219 89
October	39 00	31 18	.....	70 18
November	.....	248 00	100 00	348 00
December	.....	8 40	.....	8 40
1922				
January	.....	100 00	.....	100 00
February	.....	470 90	40 00	510 90
March	17 00	268 75	233 32	519 07
	116 00	3,535 38	4,795 10	8,446 48

STATEMENT D—Amounts due and unpaid on account of purchase money and rent or interest for the fiscal year

Locality	Rent or interest	Principal	Total
	$ cts.	$ cts.	$ cts.
Beaver Harbour	2 12	.....	2 12
Burlington Beach	470 00	.....	470 00
Chambly	1 06	.....	1 06
Dalhousie	30 36	23 00	53 36
Elmsley	5 96	.....	5 96
Grenville	0 40	.....	0 40
Grand Falls	219 96	238 17	458 13
Marlborough	21 35	.....	21 35
Nepean	64 67	.....	64 67
Niagara	312 65	507 00	819 65
Oromocto	1 74	.....	1 74
Ottawa	2,290 37	4,963 00	7,253 37
Owen Sound	19 93	.....	19 93
Oxford	2 54	.....	2 54
Port Maitland	95 83	69 08	164 91
Presqu'isle	8 34	.....	8 34
Quebec	2,093 75	.....	2,093 75
South Crosby	4 42	.....	4 42
Sorel	202 95	.....	202 95
Tay	85 40	.....	85 40
Wolford	145 30	.....	145 30
	6,079 50	5,800 25	11,879 75

REPORT OF THE FINANCIAL CONTROLLER, P. MARCHAND

Statement of revenue collected from various sources during the fiscal year 1921-22

A	Dominion Lands, including Yukon	$2,918,529 59
B	School Lands	2,335,726 83
C	Ordnance Lands	8,446 48
D	Registration Fees, Yukon	524 64
E	Fines and Forfeitures	2,912 73
F	Casual Revenue	20,128 63
G	Seed Grain and Relief Repayments	372,350 89
H	Sales of Railway Lands, special account	8,800 00
		$5,667,419 79

A statement of revenue on account of Dominion Lands marked I shows the receipts classified under subheads.

Statement marked J shows a comparison between the revenue of the present fiscal year and that of the previous twelve months.

STATEMENT A—Dominion Lands Revenue for the fiscal year 1921-22

Agencies	Amount
	$ cts.
DOMINION LAND AGENCIES	
Battleford	32,773 53
Calgary	210,629 97
Dauphin	12,825 52
Edmonton	36,424 48
Grande Prairie	6,367 52
Kamloops	6,207 09
Lethbridge	42,564 17
Moose Jaw	152,128 90
New Westminster	2,243 63
Peace River	9,518 49
Prince Albert	19,435 42
Revelstoke	2,358 64
Saskatoon	80,460 11
Swift Current	238,182 14
Winnipeg	28,238 25
Miscellaneous	30,906 06
	911,265 92
CROWN TIMBER AGENCIES	
Battleford	11,869 19
Calgary	74,942 93
Calgary Irrigation Office	683 58
Dauphin	18,627 70
Edmonton	140,764 63
Grande Prairie	13,451 82
Kamloops	49,279 87
Lethbridge	42,082 23
Indian Head	2,007 65
Moose Jaw	17,978 23
New Westminster	153,000 41
Peace River	6,364 65
Prince Albert	115,319 72
Revelstoke	21,925 97
Saskatoon	7,315 47
Swift Current	41,101 14
Winnipeg	145,267 79
	$61,982 98

A—*Continued*—Dominion Lands Revenue for the fiscal year 1921-22

—	Amount
	$ cts.
Mining Agencies	
Battleford	1,224 48
Calgary	239,621 81
Dauphin	12,896 43
Edmonton	215,604 92
Grande Prairie	30,464 77
Kamloops	743 55
Lethbridge	165,898 09
Moose Jaw	9,996 22
New Westminster	57,101 64
Peace River	61,439 56
The Pas	19,973 05
Prince Albert	8,962 80
Revelstoke	524 40
Saskatoon	1,085 68
Swift Current	6,610 83
Winnipeg	19,822 95
	851,971 18
Canadian National Parks	
Antelope Park	1,015 20
Buffalo Park	226 85
Elk Island Park	80 00
Fort Anne Park	45 00
Glacier Park	285 38
Isle-aux-Noix Reserve	215 00
Jasper Park	7,973 01
Kootenay Park	8 75
Moose Mountain Buffalo Reserve	452 60
Point Pelee Park	21 02
Rocky Mountains Park	59,208 63
Waterton Lakes Park	3,148 12
Yoho Park	1,544 12
Miscellaneous	79 00
	74,302 68
Yukon Territory	
Homestead fees	20 00
General sales of land	1,927 90
Rentals of land	5,229 47
Map sales, office and registration fees	30 00
Interim receipt account	61 00
Timber dues	9,991 79
Hay dues	22 40
Mining fees	46,147 75
Coal royalty and fees	235 31
Dredging leases	168 30
Export tax on gold	30,774 68
Free certificates for export of gold	4 50
Hydraulic leases	2,569 00
	97,182 10
Northwest Territories	
General sales of land	1,170 90
Patent fees	110 00
Registration fees	189 00
Suspense account	12 00
Liquor permit fees	194 00
Traders licenses	1,280 00
Trappers' licenses	1,599 00
Timber dues	2,370 68
Hay permits	36 75
Mining fees	1,399 00
Petroleum leases	113,443 00
Miscellaneous	20 40
	121,824 73
Total revenue	2,918,529 59
Less refunds	119,079 58
	2,799,450 01

STATEMENT B—Receipts on account of School Lands Revenue for the fiscal year 1921-22

Province	Gross Revenue	Refunds	Net Revenue
	$ cts.	$ cts.	$ cts.
Manitoba	213,214 41	9,418 90	203,795 51
Saskatchewan	1,511,292 73	35,993 18	1,475,299 55
Alberta	611,219 69	8,531 16	602,688 53
	2,335,726 83	53,943 24	2,281,783 59

STATEMENT C—Ordnance Lands Revenue for the fiscal year

Fiscal year	Gross Revenue	Refunds	Net Revenue
	$ cts.	$ cts.	$ cts.
1921–1922	8,446 48	8 58	8,437 90

STATEMENT D—Registration Fees in the Yukon Territory for the fiscal year

Fiscal Year	Gross Revenue	Land Assurance Fund	Net Revenue
	$ cts.	$ cts.	$ cts.
1921–1922	524 64	42 89	481 75

STATEMENT E—Fines and Forfeitures for the fiscal year

Fiscal Year	Northwest Territories	Northwest Game and Migratory Bird Act	Dominion Parks Regulations etc.	Gross Revenue	Refunds	Net Revenue
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1921–1922	222 00	641 90	2,048 83	2,912 73	744 00	2,168 73

STATEMENT F—Casual Revenue for the fiscal year

Fiscal Year	Particulars	Gross Revenue	Refunds	Net Revenue
		$ cts.	$ cts.	$ cts.
1921–1922	Casual revenue, miscellaneous	20,128 63	8,779 03	11,349 60

STATEMENT G—Net Repayments of Seed Grain and Relief Mortgages for the fiscal year ended March 31, 1922

Year	Gross Collections	Refunds	Net Receipts
	$ cts.	$ cts.	$ cts.
1876	177 03		177 03
1886-7-8	832 48		832 48
1890	674 85		674 85
1894	1,492 34		1,492 34
1895	1,593 66	71 69	1,521 97
1896	841 79	9 36	832 43
1900	73 77	2 30	71 47
1901	283 17	2 12	281 05
1905	96 75		96 75
1908	3,677 12	43 35	3,633 77
1909	460 41	13 71	446 70
1911	2,466 87	6 74	2,440 13
1912	4,851 56	26 40	4,825 16
1913	1,182 14	4 14	1,178 00
1914	939 66	6 05	933 61
1915 S. G	175,527 65	6,009 02	169,518 63
1915 Relief	107,980 85	1,084 91	106,895 94
1917	2,652 70	101 07	2,551 63
1918	11,589 26	269 35	11,319 91
1919	26,196 81	418 59	25,778 22
1920 S.G	14,403 75	434 95	13,968 80
1920 Relief	11,128 34	3,252 86	7,875 48
1921 S. G	508 07	82 80	425 27
1921 Relief	237 00		237 00
Relief Advances prior to 1915	2,502 86	31 40	2,471 46
	372,350 89	11,870 81	360,480 08

STATEMENT H—Dominion Lands Revenue for the fiscal year ended March 31, 1922, credited to the special account of the following railway company

Railway Company	Date of Order in Council	Amount
Lake Manitoba Railway and Canal Co. Canadian Northern Railway System	December 5, 1908	$8,800 00

STATEMENT I—Gross Cash Receipts on account of Dominion Lands Revenue for the fiscal year ended March 31, 1922

Source of Revenue	Amount
	$ cts.
Homestead fees	73,540 00
Sale fees	170 00
Improvements	56,084 83
General sales of land	761,849 89
Timber dues	683,490 99
Rental from grazing lands	144,344 67
Export tax on gold, hay, coal, petroleum, etc	1,071,395 56
Canadian National Parks	74,302 68
Map sales, rentals, office fees and miscellaneous	50,277 97
Liquor permits, traders' and trappers' licenses	3,073 00
	2,918,529 59

STATEMENT J—Gross Receipts (cash and scrip) on account of Dominion Lands Revenue for the fiscal year compared with the previous year

Particulars	1921-22	1920-21	Increase	Decrease	Net decrease
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Dominion Lands Agencies	911,265 92	1,837,137 59		925,871 67	
Crown Timber Agencies	861,982 98	696,025 30	165,957 68		
Mining Agencies	851,971 18	1,385,142 60		533,171 42	
Yukon Territory	97,182 10	90,920 91	6,261 19		
Canadian National Parks	74,302 68	76,850 09		2,547 41	
Northwest Territories	121,824 73		121,824 73		
	2,918,529 59	4,086,076 49	294,043 60	1,461,590 50	1,167,546 90

PART II

CANADIAN NATIONAL PARKS

REPORT OF THE COMMISSIONER, J. B. HARKIN

The steady increase in travel to nearly all of the Canadian National parks has been the most gratifying feature of the past fiscal year (1921-22) and a matter for great satisfaction to all who are concerned with their administration. It indicates more clearly than words the great and increasing service these reservations are capable of rendering and, both from the economic and social aspect, justifies their creation, maintenance and development. A few years ago, Dr. T. G. Langstaff, the eminent alpinist, writing of the Canadian Rockies and the National parks in the "London Field," remarked that it seemed to him that Canadians scarcely realized the value of their unique possessions, and it must be admitted there appeared to be good grounds for his indictment. For many years the name of the Canadian Rockies was better known abroad than at home but there is now noticeable on the part of Canadians themselves a growing interest in the beauty of their own country and an appreciation of the rich possibilities for enjoyment and recreation offered by the National parks, and each year sees a steady gain in the number of Canadian visitors.

Owing to the high cost of railway travel this traffic has not yet reached the high water mark set in 1915, the year of the Panama-Pacific exposition, but it is noted with a great deal of satisfaction that people tend each year to remain an increasing length of time in the parks. While the total registrations are necessarily lower the use that is being made of the parks is a much better use and one that is more consistent with the ideals lying behind their creation. For while no one can travel through the Canadian Rockies or spend even a few hours among the wonders of the National parks without gaining a new conception of the greatness and beauty of Canada and of the possibilities of national life, still the mountains yield their real riches only to those who come and live among them, absorbing through days and weeks their strength and health and beautiful serenity. These are the things the parks were created to give and they cannot be gained by the visitor who rushes through them in a few hours either by railway train or motor car. The fact that so many Canadians are making the parks the objective for their entire holiday is, therefore, a matter for much satisfaction. The total travel to the parks during the past fiscal year is as follows:—

	1921-22
Banff National Park	71,540
Yoho National Park	3,000
Glacier National Park	3,223
Mount Revelstoke Park (estimated)	4,000
Jasper National Park (estimated)	7,000
Waterton Lakes National Park (estimated)	20,000
Buffalo National Park (estimated)	7,000
Elk Island National Park	5,443
Point Pelee National Park (estimated)	7,000
St. Lawrence Islands National Park (estimated)	30,000
Fort Anne National Park (estimated)	8,000
Total	166,206

THE YEAR'S TRAVEL ANALYZED

An analysis of the year's travel shows that 88,763 people went to the large parks along the main railway lines, of whom approximately 65,000 were from foreign countries. Estimated on the basis of expenditure used in this report in former years, namely, $300 for each foreign visitor, which is admitted to be a conservative figure, it means that the national parks are responsible for an indirect revenue of approximately $19,500,000.

The total appropriations for the National parks during the past year were $966,000. According to the last census the population of Canada numbers 8,775,853 so that the National parks last year cost the people of Canada about 12 cents per capita. As shown above however, they bring in an indirect revenue of $19,500,000, or a per capita return of approximately $2.22. That is indirect revenue. But it must be remembered that this $19,500,000 is divided among the people and increases their incomes to that extent. A good part of it is, therefore, taxable under the business and income tax so that a considerable percentage of it comes back again directly to the Dominion treasury by way of this tax. There are also other revenues from the parks, from the sale of timber and from various concessions and leases, which amounted last year to $72,000.

In addition there were approximately 27,000 foreign visitors to the smaller parks and while these, in some instances, as at Point Pelee park or the St. Lawrence Islands park, might represent an expenditure of only a few dollars, in the other cases and in the aggregate it would amount to a considerable sum. It must be remembered, too, that the parks performed a direct service, which cannot be calculated in dollars and cents, by serving as a means of recreation for nearly 75,000 Canadians.

A considerable part of the increase in Canadian travel must be credited to the increasing use of the automobile. An analysis of the registrations of cars at Banff shows that a very large percentage come from points on the prairies although there are cars from as far east as Winnipeg and from practically every section of the United States. The gratifying feature of this class of travel is that it also indicates that these great reservations are becoming each year more truly "people's parks". It means that they are no longer a luxury within reach only of the rich. Any one from Vancouver to Winnipeg who owns a car may now enjoy the delights and benefits of a holiday among the mountains at a slight expenditure of both time and money.

As was the case last year the greatest comparative gain has been in the smaller parks, Waterton Lakes park, which is becoming deservedly popular, again showing a very large increase. Elk Island park, which serves not only for a buffalo reserve but for a summer resort as well, also reports an increasing number of campers and at Point Pelee park in southern Ontario, although no registrations were kept, the superintendent reports that travel was the largest yet experienced.

A growing interest in the historic parks is also noticeable. Each year the honorary superintendent of Fort Anne park, Annapolis Royal, reports a steady gain. This year he estimates the number of visitors, not including people from the town itself, would total 8,000, the largest yet recorded in the history of the park.

The increasing number of demands for information of various kinds about the parks and requests for illustrated lectures on the part of schools, clubs, and other organizations, as well as for material for articles from newspapers and magazines evidences also a much livelier interest in the parks on the part of the general public and indicates the formation of a public sentiment out of which we may confidently expect to draw a large tourist travel in the future.

POSSIBILITIES OF TOURIST TRAVEL

For some years there has been pointed out in this report the tremendous undeveloped possibilities that lie within Canada's reach with respect to tourist travel. It

is increasingly apparent that the value of tourist traffic is now becoming widely recognized. The experience of those provinces which have undertaken special publicity campaigns and the prosperity that has followed the building of motor highways have convinced everyone that tourist travel pays, and that it can be developed like any other industry. Herbert Cuthbert, Secretary of the Pacific Northwest Tourist Association, at the Annual Conference of the organization in Tacoma in April, 1922, stated that five years ago tourist traffic into the Pacific Northwest was worth only $7,000,000. In 1921, as a result of organized publicity, it reached $40,000,000 and it was expected it would total $60,000,000 in 1922. An industry that can be developed from $7,000,000 to $60,000,000 in five years by an expenditure of a few hundred thousand dollars must be taken into consideration by every economist. The total dividends from the gold and silver mines of Ontario up to 1921, according to figures recently published in the daily press, have amounted approximately to only $115,000,000, or a little less than double what the Pacific Northwest States, including British Columbia, expect to receive this year.

From reports received from the different sections of Canada, and from railway, steamship, and motor travel figures, there is good reason to believe that a conservative estimate of the value of tourist traffic into Canada for the past year would total not less than $100,000,000. This means that it has already become one of our most important sources of wealth. As shown in previous reports when we bring money into the country by tourist travel it is just the same as if we exported goods to that amount and received money in return with this exception that we have sent nothing out of the country that leaves our capital stock diminished. Now compare the value of our four highest exports during the fiscal year 1921-22 with our export of scenery and they will be seen to rank as follows:—

Agricultural and vegetable products	$317,578,963
Wood and paper	179,925,887
Animal products	135,798,720
Foreign tourist travel	100,000,000
Iron and its products	27,312,272

That means that what we may call our export of scenery must already take fourth place in our foreign trade. It will be observed, too, that its total value amounted to only a little less than one-third of the value of our farm and garden products, while it is considerably more than half the value of our total forest products both raw and manufactured.

In the twelve months ending March 31, 1922, Canada's total exports amounted to only $740,240,680, as against $1,189,163,701 in 1921, and $1,239,492,098 in 1920. That is a decrease in foreign business of approximately $450,000,000 in one year. This is an enormous sum but it is less than the annual revenue of France from tourist travel in the years immediately preceding the war, and is approximately equal to the amount formerly spent by Americans in foreign travel each year. If under these circumstances we could attract to Canada a tourist traffic only four times what we are now receiving, it is clear that we should have achieved the same result so far as our national prosperity is concerned. And probably no one would deny that there is no part of Canada which is not capable of attracting four times as many tourists as it had last year. Organized publicity has brought about such results already in special districts. The growth of travel to the Pacific Coast States, as mentioned above, is now eight times what it was five years ago and similar results have been secured in California and other places that have turned their attention to an organized development of the industry. It is reported that at the present time from 30 to 40 per cent of all the gold in the world is stored in New York vaults. Part of surplus wealth of this kind can be drawn into circulation only through the purchase of luxuries. Now Canada manufactures few luxuries which she can export but she possesses other things that are equally valuable. Her scenery, her romance, her summer, and even her winter climate, her big game and wilderness areas can

all be made to serve as a magnet for foreign gold. It is impossible, too, to say to what limits an industry, that caters to a universally desired pleasure, may be developed. Twenty years ago the motor-car was practically unknown. To-day over ten billion dollars of private money is invested in cars in the United States alone and the annual upkeep must amount to hundreds of millions. The desire for travel is almost equally universal and in fact it is often one of the reasons behind the desire to own a car.

GROWTH OF MOTOR TRAVEL

The astonishing growth of motor travel into Canada has been one of the surprising features of the past year. According to figures collected by the Department of Customs the number of cars entering Canada during the calendar year has jumped from 93,300 in 1920 to 617,284 in 1921; of these 615,074 registered for less than one month, 2,211 for more than one month and less than six months. The entries by provinces were: Nova Scotia, 223; Prince Edward Island, 22; New Brunswick, 1,826; Quebec, 43,264; Ontario, 537,183; Manitoba, 8,020; Saskatchewan, 427; Alberta, 363; and British Columbia, 25,957. This shows that we have entered upon a new phase of the tourist industry. The wide distribution of profits from high prices during the war brought the automobile within reach of thousands of skilled workmen, farmers, and small tradesmen, and with it came the possibilities of travel. The thousand-mile journey has now become a commonplace. It is only necessary to build good roads, to provide adequate accommodation and to advertise the attractions of any district sufficiently and the travel will come.

There is one other consideration with respect to tourist travel that is not always recognized and that is its value as a forerunner of permanent settlement and financial investment. In an undeveloped country like Canada it is of inestimable advantage to have people from foreign countries touring through it and gaining an idea of its rich undeveloped possibilities, its great resources and its attractiveness as a place in which to live. Tourist travel, in fact, is one of the best immigration agencies, as it is also one of the best methods of attracting foreign capital, and a policy looking towards its development appears worthy of consideration along with policies of immigration or trade.

It is increasingly evident that other countries are coming to regard tourist travel seriously as an industry and are taking official steps to encourage it. Reference has been made before to the French Office of Touring and to the attitude of Italy in this regard. A pamphlet received from the Information Office for Tourists located at the Hague shows that action is also being taken by Holland. The bureau in question is supported by the Government and under its direct supervision. It plans tours throughout Holland, helps lovers of art to see the wonderful Dutch galleries, takes the artist to the picturesque villages near inland lakes, procures sailing vessels or motor boats for those who wish to undertake a yachting cruise, engages reservations in hotels and trains, and provides maps, charts, and guides, all absolutely free of cost. The traveller is thus relieved of all the petty worries of travel and knows in advance just how much his trip will cost. Service of this kind is of inestimable value to a tourist and it will probably not be many years until it will come to be adopted by all countries that are seeking to attract foreign travel.

BANFF-WINDERMERE ROAD

Construction operations on the Banff-Windermere highway were carried on throughout the year and the early completion of the road is now in sight. During the spring clearing was continued along the Kootenay and Vermilion divisions and grading was started in June. During the summer about 11 miles were graded from the north end, the road being completed to within a mile of Vermilion crossing.

From the south, grading was carried out from the end of the old British Columbia construction to Kootenay crossing, a distance of about 17 miles, so that during this season a total of about 28 miles of graded road was completed. The truss bridges at Vermilion crossing and Hawk creek, which had been partially completed the previous year, were finished. Clearing of the surveyed line was completed during the winter of 1921-22 and extra clearing of burnt-over timber carried out on the south end of the Kootenay division. On the Sinclair divisions portions of the road built by the Government of British Columbia through solid rock were widened. It is expected that this road will be ready for travel by June, 1923, or a year sooner than called for by the contract made with the British Columbia Government. The commissioner went over the road during the past summer by motor and horseback and was much impressed with the wonderful scenic attractions and the judgment shown in its location. The grandeur and beauty of this section of the Rockies can scarcely be surpassed, particularly as one approaches the beautiful Sinclair canyon where the road winds between towering walls of red rock. The area is rich in game of many kinds: sheep, goat, moose, elk, and bear are numerous and rapidly increasing. Indeed, the wild life along this road will undoubtedly prove one of its greatest attractions. To see these beautiful creatures moving fearlessly about, often feeding within camera shot of a motor car, is a unique and delightful experience.

As no hotel accommodation exists between Banff and Invermere, camp sites will be located at suitable points and equipped with stoves and other conveniences. The erection of specially designed warden's cabins, adapted also as shelter homes and social rooms will probably be considered later.

OTHER ENGINEERING AND CONSTRUCTION WORK

Rocky Mountains Park.—The most important work in the Rocky Mountains park was the completion of the new steel and concrete bridge over the Bow river at Banff. This is a very artistic structure that adds greatly to the appearance of the town and provides better facilities for the rapidly increasing motor traffic in the park. Several other bridges were constructed at different points, including a highway bridge over the Cascade river and trail bridges over the Spray river at two points.

Work was continued on the construction of the new 18-hole golf links at Banff and by the close of the year good progress had been made towards its completion. The new water-mains have been of great service in keeping the fairways in good condition.

Jasper Park.—A cement floor was laid on the new steel highway bridge over the Athabaska river, near Jasper, and the "fill" for the approaches to the bridge was completed. A new trail was constructed from Sunwapta to Southesk via Brazeau lake, work being carried out from each end towards the centre. At the end of the year only some eight miles remained unfinished. The old bridge over the Athabaska was dismantled. In addition maintenance work was carried out on the various park roads, trails, waterworks, and telephone lines.

Waterton Lakes Park.—Two timber bridges were constructed one over Cameron creek and one over Pass creek. Winter work was carried out on the Waterton-Akamina pass road, chiefly clearing and solid rock excavation. An ice-house with cold storage rooms was erected in the townsite. The construction of a new nine-hole golf course was commenced and good progress made, so that the course will be in a playable condition during the summer of 1922.

Yoho Park.—The approaches to the new bridge over the Kicking Horse river at Field were completed and the bridge painted. As the old Canadian Pacific railway

grade in the vicinity of the Ottertail river had been abandoned as a highway, the old high trestle crossing the river was dismantled and the timber salvaged for use in construction purposes at various points in the park. Construction of a new bridge over the Kicking Horse river on the Leanchoil trail was also commenced before the end of the year.

Revelstoke Park.—The maintenance of the motor road up Mount Revelstoke involves each year considerable repair work owing to the damage done on the mountain side by melting snows. By keeping the ditches and culverts well open while the snow is melting it is found that washouts can be averted and as soon as spring opens these are at once cleared. It is hoped to complete construction work on the motor road to the summit during the coming summer. As soon as the west road from Revelstoke to Sicamous and Vernon is completed Revelstoke will have communication with the greater part of interior and southern British Columbia, which will result in very much increased motor traffic to this park.

The erection of a shelter house on the ski hill provided a much needed convenience. The ski tournament held at this park each year is among the most notable on the continent and attracts professionals and amateurs from all parts of America.

Kootenay Park.—Arrangements were made during the year for the topographical survey of the new Kootenay park. Much of this territory is virgin country and the geographical data in connection with it are very incomplete.

BUNGALOW CAMPS

The bungalow camp established last year at Wapta lake by the Canadian Pacific Railway Company proved very popular. It is becoming increasingly evident that this class of accommodation meets the requirements of a large part of the travelling public, providing as it does plain but comfortable sleeping quarters and an excellent table. This simple accommodation, in touch as it is with the actual out of doors, is preferred by many genuine nature lovers and people of refinement. It is expected in the near future similar accommodation will be provided in Jasper and Waterton Lakes parks.

MOSQUITO CONTROL AT BANFF

The interesting work, which was begun last year, looking towards the extermination of mosquitoes in the vicinity of Banff, was continued during the summer. In view of the extraordinary differences in the breeding habits of these insects it was seen that in making any attempt at competent control it was necessary to have an expert and intimate knowledge of the species concerned and of the local conditions. The services of three young entomologists, university students, were secured, and they began work on May 15 under the direction of Mr. N. B. Sanson, curator of the Banff museum. From that date to the end of June they kept watch on the breeding areas, spraying with oil wherever larvæ were found and collecting specimens for identification. It was found that the most important species to combat in the neighbourhood of Banff is the *ædes*, members of which breed in flooded areas and when hatched out into adults may travel as far as four or five miles. The eggs are laid in the water and when the latter evaporates or drains off they are left on the sod. Before hatching they have to become dry and then, on the land being reflooded, will hatch out. Experiments show that eggs will remain fertile for as long as six years. During the larva and pupa stages the insects must breathe through the surface of the water and a thin film of oil spread upon the surface will cause suffocation inside of a maximum time of four hours. The areas flooded by the Bow and Echo rivers and Vermilion lakes were given attention during the first week following

the rise of water, and systematic oiling operations carried out. Later a foreman and three men were set to work clearing out the heavy willow growth to make trails to and around the sloughs, and some filling in and draining, as well as dyking on a small scale, were undertaken.

In June Mr. Arthur Gibson, Dominion Entomologist, and Mr. Eric Hearle, who is in charge of the mosquito laboratory in the Fraser River valley and one of the foremost mosquito experts on the continent, visited the park, inspected conditions both at Banff and Lake Louise, and made a number of valuable recommendations. The marked decrease in the number of mosquitoes during the tourist season brought very favourable comments from visitors and it is the intention to carry on the work more extensively next season.

FISHING

Thanks to the excellent work being done by the Department of Marine and Fisheries in the maintenance of hatcheries, the fishing in park lakes and streams continues good, and, particularly in the parks on the east slope of the Rockies, forms one of our most important tourist attractions. Waterton Lakes park probably ranks first as a fishing resort, the lake itself and practically all its tributary streams abounding in trout of a good size and quality. Lake trout, too, the largest game fish found in the parks, specimens of which are sometimes taken weighing as much as 50 pounds, are found in Waterton Lakes park. As is well known, the lower Waterton lake extends across the boundary into the United States Glacier National park, so that it becomes an international fishing water. Last year fry were again received from the United States park and deposited in the upper waters of the lake, thus benefiting the fishing in both parks.

About half a million fry were liberated in the waters of Rocky Mountains park from the Banff hatcheries during the season: 300,000 rainbow and cutthroat trout in July and 200,000 of the same varieties in August. The Spray Lake hatchery had one of the best seasons in its history, the return of spawning cutthroat being greater than ever before.

RECREATIONAL AREAS

An interesting phase of recent development is the creation of so called "recreational areas." These are reservations of Crown lands which are adapted for public use and enjoyment for summer resort and recreational purposes but which do not possess scenery of sufficient importance to justify their creation as national parks. They are usually lands about a lake, which are unfit for agriculture and so have remained unpatented, but which are adapted for summer cottage sites and recreational purposes. In response to strong local demands investigations have been made of several such lakes in the Prairie Provinces and their reservation is now under consideration.

REVENUE

The total revenue for 1921-22 was $78,907.21. While this was $2,214.89 less than the previous year, the apparent decrease is accounted for by the fact that the revenue for 1920-21 contained two unusual items: the $1,341.15 which resulted from the sale of muskrat skins at Point Pelee park and $3,975.70 derived from the sale of buffalo heads and robes at the Montreal fur sales. If these two items were omitted from the previous year's returns the past year would show a gain of $3,100.96.

TIMBER PROTECTION

The betterment of the patrol system, increased telephonic communication, improvement of the mechanical fire-fighting apparatus, and the detailed instructions given the warden service in the use of the portable fire-engines developed by this branch, had a good deal to do with the lower acreage of timber destroyed by the season's fires. A comparative statement of the season of 1921 with that of 1920 shows:—

	1920	1921
Number of fires	94	70
Acres damaged	6,003 acres	2,614 acres
Cost of extinguishing	$7,585.93	$8,296.26

The average number of wardens for the year was 52, compared with 48 in 1920, and their patrol covered 194,854 miles compared with approximately 141,700 miles in 1920.

A new and improved model of the small portable gasolene fire-pump, designed by the Canadian National Parks Branch for fighting forest fires in the parks, has recently been developed. These units, which were introduced a few years ago, have proved themselves so successful that they have been adopted by practically all organizations engaged in forest protection work in Canada and by many in the United States as well. Seven of these units were recently used in one of the parks in relays pumping through one to the other from a mountain stream situated a mile and a quarter from the scene of the fire and excellent results were secured.

The forests of the National parks are now protected by thirty of these engines, which are modelled along the lines of the gasolene marine motor but so reduced in bulk and weight as to be readily portable on pony back over the mountain trails, by gasolene speeders along the railways or over the 400 miles of motor highways in the parks by automobiles.

Construction work during the year included 208 miles of trails, 109 miles of telephone lines, and 8 cabins. The telephone line from the city of Revelstoke to the cabin at the top of the mountain was completed. An important inauguration also was the construction of the telephone line running from the Red Deer cabin No. 18 in District 10, Rocky Mountains park, to the Forestry cabin on Red Deer river.

No direct aeroplane patrol work has been carried out in the Canadian national parks except in Waterton Lakes park, but during the season of 1921 a number of fine oblique photographs were taken of the different main valleys to show the water and timber areas in Jasper park.

Twelve sets of artillery field telephones, useful as temporary fire lines or on construction work, were distributed among the parks.

The fire protection work included the ploughing of 139 miles of fireguard at Buffalo park and 19 miles at Elk Island park. A volunteer fire brigade was organized in Field, making the third of such bodies now in the parks, brigades at Jasper and Banff having already been established. Thirty camp stoves of cast iron and concrete body were distributed among Banff, Jasper, Waterton Lakes and Yoho parks to meet the outdoor cooking requirements of tourists and campers.

STATEMENT OF FIRES IN CANADIAN NATIONAL PARKS, SEASONS, 1920, 1921

Date	Name of Park	Unknown	Campers	Railway	Lightning	Other Causes	Total	Cost of Extinguishing
1920	Rocky Mountains.	2	21	8	2	1	34	$ 4,425 46
	Jasper		8	39			47	840 22
	Waterton		1				1	50 70
	Glacier			1	5		6	1,648 59
	Yoho		1	1	3		5	620 00
	Kootenay		1					
		2	32	49	10	1	94	$ 7,585 93
1921	Rocky Mountains.	3	15	7			25	$ 1,528 12
	Jasper	1	5	27			33	1,336 59
	Waterton	1	1			1	3	4,782 72
	Yoho				1		1	70 90
	Glacier				1		1	43 75
	Kootenay		1		1		2	336 10
	Buffalo		2				2	195 03
	Fk Island and Point Pelee					3	3	3 05
		5	24	34	3	4	70	$ 8,296 26

TOWN PLANNING

In 1921 the town planning office previously a part of the Commission of Conservation was transferred to the Canadian National Parks Branch. By this transfer the services of the town planning division were more intimately available for the planning of community life within the limits of the national parks and for the better provision for the needs of tourists, while at the same time the educational work of the division could proceed as in the past.

The educational work of the branch which has been carried on in Canada during the past seven years with such good results was also continued. Lectures were given by members of the staff at the universities of Montreal and Toronto and at various places where civic authorities are contemplating town planning improvement. Exhibits of town planning material were provided for various conferences and public meetings and lantern slides and lectures sent to distant parts of the Dominion from coast to coast. Where there is no provincial town planning executive or no provincial town planning act, private citizens who are desirous of improving the methods of town development usually write to Ottawa, and advice and literature are sent to them. Much assistance has been given to the Journal of the Town Planning Institute of Canada, both in preparation of literary material and in the provision of plans illustrating the movement and advantages of town planning methods.

Projects

Among other projects are the following:—

Rocky Mountains Park.—Plans for the improvement of the general layout, street system, and buildings; designs for the grounds of the various public buildings and general planning at Canmore; plans for the general improvement of Banff and detailed studies for the improvement of Banff avenue, layout of an automobile camp on a fairly large scale for Banff, with the buildings that will be required, lighting, water, and drainage systems; layout of automobile camps at lake Louise and on the road from lake Louise to Banff.

Kootenay Park.—Layout of automobile camps on the Banff-Windermere road; layout of townsite at Radium Hot Springs together with plans of buildings that may be required there, *e.g.* swimming pool, etc.

Jasper Park.—Layout of townsite at lac Beauvert together with designs for buildings required—golf club house, bath house, etc.; plans of a layout scheme for the various government buildings at Jasper, some of which are already erected, *e.g.* garage, stores, stables, etc., layout of a townsite in connection with Miette Hot Springs.

Waterton Lakes Park.—Revised layout for business section, new residential areas, auto camp, plans for community building, etc.

Elk Island Park.—Layout of lots for summer cottages with plans for buildings that may be required.

Brereton and Norah Lakes.—Layout of lots for summer cottages.

Historic Sites.—Plans for the improvement of the various historic sites.

PROTECTION OF ANIMAL LIFE IN THE PARKS

There is perhaps nothing in connection with the work of National parks that is a cause for more satisfaction than the steadily increasing abundance of practically every form of wild life. It offers a demonstration of the value of sanctuaries more impressive than any arguments, and shows how quickly a species will re-establish itself under adequate protection as well as how readily wild animals will accustom themselves to the presence of man, once they are convinced there is nothing to be feared. The decrease of larger game mammals throughout much of the continent makes the abundance and fearlessness of the larger mammals in the National parks an increasing attraction to tourists and this attraction is bound to increase as the game in unprotected portions of the country diminishes or is driven off to more remote sections. Indeed the time may not be very far distant when it will be only in such protected reserves that some of our larger mammals will be known to future generations. In this connection it is interesting to note the observations of Dr. Henry Fairfield Osborn, President of the American Museum of Natural History, at a meeting of the American Society of Mammalogists in New York City in May last. Mr. Osborn is reported as saying that we are now witnessing the close of the age of mammals, an elimination which was begun by man about 400,000 years ago but which has become acute in recent years. "Nothing in the history of creation", said Dr. Osborn, "has paralleled the ravages of the fur and hide trade which now, with the bone fertilizer trade, threatens the entire vertebrate kingdom." Other distinguished mammalogists present predicted that it will be only a matter of years when wild game will be seen only in museums and picture books. In view of these gloomy predictions it is doubly gratifying to witness the steady increase of wild life in the parks and to note that the natural overflow is gradually re-stocking the adjacent districts. These areas seem likely to be in the future the most important museums and schools of natural history, and it is a matter for satisfaction to realize that they must become as time goes on increasing sources of delight and interest to the student or lover of wild life.

The increase in bighorn sheep and Rocky Mountain goat in all of the mountain parks is everywhere apparent. While it is obviously impossible to form an accurate estimate of their numbers without a careful survey, it is interesting to note that the superintendent of Jasper park estimates that there are now 10,000 bighorn and 5,000 goat in that park where ten years ago these animals had been almost exterminated. The numbers in Banff park must also reach a large figure. The elk herd procured from Yellowstone park in 1920 has done splendidly and practically doubled in numbers. Deer are found everywhere in abundance and moose are steadily increasing.

Buffalo.—At the close of the fiscal year the total number of buffalo in the parks was 6,539; of these 6,146 are in Buffalo park, 280 in Elk Island and 13 in the small exhibition herd at Banff. The increase for the year was 1,102. The proposed slaughter of surplus males has not yet been undertaken but it has become imperative that action should be taken in this connection in the immediate future as the present range is overstocked.

The addition of 19 square miles to Elk Island park brings the present area of this fenced animal reservation up to 35 square miles. The extension takes in all that portion of the Cooking Lake forest reserve lying north of the Edmonton-Tofield highway. The new area will not only provide additional grazing grounds for the buffalo, elk, deer, and moose in the park but will supply further opportunities for recreation. Its proximity to the motor highway, too, will make it much more accessible to the general public and a large increase of visitors is expected as a result.

The abundance and fearlessness of many forms of wild life in this park are a constant source of pleasure to tourists. Fine big mallards will sit on a lake only 20 feet away from a humming motor and the sight of bands of elk moving freely through the open woodlands never fails to give delight.

Antelope.—The antelope herd at Nemiskam continues to thrive and, according to reports received from the caretaker, although no actual count has been made, is believed to number considerably over 100. The success of this experiment has led to a determination to establish other reserves of a similar nature, and two additional areas, one in southern Alberta, the other in the Medicine Hat region, will shortly be set aside and proclaimed national parks for the preservation of this species. There is no doubt that these sanctuaries are urgently needed if the antelope is to be preserved from extinction. The chief game guardian of Saskatchewan estimates that there are now only about 250 wild antelope left in the whole of that province. The number in Alberta, in the opinion of the provincial chief game guardian, is not more than 1,000. As is well known antelope disappeared several years ago from Manitoba. It is therefore evident that the species is now on the verge of extinction and unless immediate steps are taken must inevitably disappear. The efforts being made for their preservation in the Dominion sanctuaries are therefore of great interest and importance. It is perhaps too soon to say yet that the antelope can be saved but it is certainly encouraging to note the good results so far obtained in the Nemiskam reserve, which appear to indicate that they can be successfully bred in captivity.

Predatory Animals and Birds.—Coyotes are troublesome and it is necessary to keep up a continual war on these pests. The caretaker also reports that there is a species of eagle which he finds is nearly as great an enemy to the young antelope as the coyote. Two young antelope were caught and killed this spring in the reserve, both by eagles. Efforts to protect the herd from these birds will therefore be made.

Donations to Other Parks.—A number of donations of wild animal specimens from the parks was made including 6 Rocky Mountain sheep to the Zoological Society of New York and 12 Rocky Mountain sheep to the Bison range, Montana. Eight sheep will also be shipped to the State Game farm in South Dakota when weather conditions permit.

Farming.—The farms maintained within the parks for the production of feed for the animals continue to give good returns and are resulting in a substantial saving to the department. Farming operations are now carried on at Waterton Lakes park, Elk Island park, Rocky Mountains park and Buffalo park. At Rocky Mountains and Elk Island only haying operations are carried on, 56 tons having been put up in the former and about 350 in the latter. At Waterton Lakes park there were grown 967 bushels of oats and 74 tons of hay. The crop at Buffalo park was not

quite so large as the previous year when the yield was exceptionally heavy, but it amounted to 9,200 bushels of oats, 180 tons of straw, 850 tons of hay and 35 acres of green fodder, which were estimated at a total value of $22,712.

PROTECTION OF MIGRATORY BIRDS

The enforcement of the Migratory Birds Convention Act has been continued throughout the year and the great value of the new regulations in protecting the birds of the continent, which pass through Canada and the United States in course of migration, has been evinced by reports received from practically all sections of the country. While there are a few localities in which increases in migratory bird life have not been apparent, these it may be assumed have suffered because of some unfavourable local condition. Taking the country as a whole the reports show a marked increase in bird life of many kinds. In some localities, it is true, misapprehension concerning the fundamental principle underlying the treaty still exists. It has been said that it favours the United States shooter, a belief which can arise only from an erroneous conception of the Act. In some cases it has been necessary to point out that no seasons for migratory waterfowl in the United States extend beyond January 31 in any year which means that the treaty has effectually stopped the destructive practice of spring shooting. To the stoppage of this practice and to the fact that the sale of migratory game birds is forbidden throughout most of the continent, the general increase in migratory waterfowl is undoubtedly due.

In the summer of 1921 an amendment was made to the regulations under the Migratory Birds Convention Act which brought into effect certain minor changes in open seasons, added some provinces to those in which the sale of migratory game birds was forbidden, and altered slightly the restrictions placed upon certain methods for capturing these birds.

The permanent organization for the enforcement of the Act throughout Canada has been kept at approximately the same strength and, in addition to the enforcement of the Act, the staff has engaged in continuous efforts through lectures, publicity, and in other ways to extend information concerning the value of birds and the need for their protection. In carrying on this work throughout Canada the staff has enjoyed the fullest co-operation with the provincial game departments and, except in provinces where the provincial law does not conform to the treaty, the actual enforcement of bird protection measures has been left largely in the hands of the provincial authorities.

One hundred and thirteen honorary game officers were appointed during the year, bringing the number of our honorary staff up to 1,722. Through the co-operation of the Forestry Branch of the Department of the Interior all forestry officers throughout the Dominion were also appointed honorary game officers and they are furnishing this office with important information concerning the value of the various forest reserves as breeding grounds for migratory waterfowl. The officers of the Marine and Fisheries Department stationed along the Atlantic coast and the officers of the Royal Canadian Mounted Police throughout Canada have also co-operated in bird protection work. As a result, too, of negotiations with the province of Alberta, the provincial authorities agreed to have their provincial officers act as honorary game officers under the Migratory Birds Convention Act.

Educational

Educational work with regard to the meaning and value of the treaty was again carried on. Further editions of previous pamphlets on bird protection were published during the year, the total distribution of pamphlets of all kinds amounting to 125,813. Publicity concerning the shooting seasons and other bird protection matters was

obtained through the distribution of 34,661 posters. The Post Office Department co-operated with the branch by having one of the posters regarding open seasons under the Migratory Birds Convention Act placed in each post office in Canada.

The most important bird publication of the year was a pamphlet entitled "Lessons in Bird Protection". Eighty thousand copies of this pamphlet, sufficient to supply each school teacher in Canada with one copy, were published and distributed. This publication has now been authorized for use in every school in Canada.

Eighty-five lectures on bird protection were given by members of the permanent staff during the year and lantern slides and other material were furnished to honorary officers and others so that they might deliver lectures on this subject. Moving picture films of bird life were also distributed and proved an excellent publicity medium.

Short articles in connection with the work were also written by many of the game officers of the branch as well as by the honorary game officers. Mr. A. G. Lawrence, one of the western honorary officers, began the publication in a Manitoba paper of a weekly column on birds. The preparation of material for a weekly column of bird news involves a great deal of labour on the part of Mr. Lawrence, but its educational influence is undoubtedly far-reaching and beneficial.

Copies of the late Dr. Hewitt's book "The Conservation of Wild Life in Canada," were sent to all honorary game officers.

Two exhibits of protected birds were prepared for display during the winter carnival at Ottawa in January last. One of these, through the courtesy of the Canadian National Railways, was displayed in the window of their main offices on Sparks street. It consisted of about 20 specimens of mounted birds, named in English and French, as well as a large seizure of gull plumage. A poster explained that all these had been seized for illegal possession and as the display attracted a great deal of attention it is believed that it served to educate a great many people as to some of the birds which the general public does not yet appear to realize are protected under the Migratory Birds Convention Act. This exhibit was later taken to Montreal and shown in the window of the Canadian Pacific Railway Telegraph office there.

Following the decision of the Department of Justice that Indians in Canada are amenable to the provisions of the Migratory Birds Convention Act, a special poster has been prepared to acquaint Indians in the different parts of Canada with the provisions of this Act.

The National Association of Audubon Societies has agreed to the extension of its Junior Bird Club organization to Canada. This involves a very considerable expense to the association, and the branch was much gratified to learn of the successful termination of negotiations which had been instituted to bring about this desirable end. The formation of bird clubs in the schools and the valuable publications, including "Bird-Lore," distributed by the association, form one of the best methods of educating children with respect to the importance of bird protection, and the extension of the work to Canada is bound to result beneficially. The various provinces have been acquainted with the result of negotiations for the establishment of these bird clubs in Canada and, with few exceptions, the departments of education have approved of the plan.

As part of its work for the preservation and protection of valuable bird life the branch has been encouraging the building of bird-houses and early in the present year honorary game officers were written to and asked to organize bird-house competitions among the children of their neighbourhood. In Ottawa and some of the larger cities the manual training teachers have directed the boys in the building and designing of bird homes and more than 2,000 bird dwellings have been built this spring in the city of Ottawa alone. A number of bird-houses were also made and erected in some of the national parks.

One of the most important aids to the study of bird life lies in the work of bird banding which is now being officially directed from the Biological Survey at Washington, D.C. A considerable number of people in Canada were already carrying on this work but the desirability of having workers in every part of the country suggested that the undertaking should be extended if possible. A circular was accordingly drafted and sent to all honorary game wardens and other persons interested in bird protection explaining the work and suggesting co-operation.

Bird Sanctuaries

The creation of bird sanctuaries, which is an indispensable part of the work of bird protection in Canada, is going steadily forward.

Following investigations by the chief federal migratory bird officer for Ontario and Quebec, who studied conditions on the north shore of the gulf of St. Lawrence during the summer of 1921, a recommendation has been made that ten bird sanctuaries be established on this coast. These have been selected with great care and should serve as valuable refuges for the important bird life of this region. This matter is still under advisement but it is hoped that early action will be taken.

The bird sanctuary at Last Mountain lake, Saskatchewan, which has been under preservation since 1887, was brought under the Migratory Birds Convention Act by an Order in Council during the summer of 1921.

A preliminary survey of provincial game reserves in the province of Manitoba was also made, and the report on the matter is at present before the department.

It is interesting to note that the existence of the bird sanctuary on Bonaventure island near Percé, Gaspé county, Quebec, is proving a noticeable attraction to tourists. During the summer of 1921 numbers of prospective guests had to be turned away because of lack of accommodation, although the principal hotel in Percé was considerably enlarged last spring. The residents regard the sanctuary as very desirable and it is the source of a considerable income to those living in the vicinity, because of the money spent there each summer by visitors attracted by the bird colonies.

As the public learn the necessity for the creation of bird sanctuaries various objections to them became less frequent. The sportsmen are already fairly well acquainted with the necessity and desirability of setting aside breeding grounds for game birds, but this necessity is not so generally understood by the farming communities. With a view to acquainting persons in Western Canada, who may apply for permission to use sanctuary lands for various purposes, with the need for bird sanctuaries, a circular was drafted and a copy sent to all such applicants, making it clear that without these sanctuaries the supply of migratory water-fowl in the future would be seriously reduced. The continued reduction of the marsh and lake areas in the western provinces of Canada, because of the extension of agriculture and drainage operations, cannot but have a serious effect upon the supply of water-fowl in the future.

Arrangements have been completed with the Natural Resources Department of the Canadian Pacific Railway for the creation of a bird sanctuary on the property of the railway at lake Newell, Alberta.

Public Shooting Grounds

While the policy of the branch is to use every effort to secure the protection of migratory wild-fowl and to set aside for this purpose available sanctuaries for breeding grounds, it is also of the opinion the public should have access to a fair and reasonable share of the game. It is, therefore, recommending the creation of public shooting grounds where any citizen of Canada may have the right to hunt.

Several of the provincial governments have made recommendations concerning areas which they consider should be set aside as shooting grounds of this kind, and already certain of these areas have been inspected by officers of the branch. In this connection the province of Alberta recommended the setting aside of 57 lakes, while the province of Saskatchewan recommended the setting aside of 15 lakes. The movement is one that has received the almost unanimous support of sportsmen, who recognize that if the two policies are carried out—(1) adequate protection by sanctuaries, and (2) public shooting grounds where hunting is permitted under whatever restrictions the game supply warrants—there will be permanent shooting for every one.

Prosecutions

During the year the branch took court action in 86 cases for violation of the Migratory Birds Convention Act. Convictions were registered in 79 cases, in 6 of which the sentence was suspended; 4 cases were dismissed, 3 were withdrawn. The total fines imposed amounted to $865, while 6 guns, 1 boat, 54 bird specimens and 7 pieces of miscellaneous equipment were confiscated.

At the request of the Association for the Protection of Fish and Game in the province of Quebec the supervisor of wild life protection spent two days in Montreal attending court and giving expert evidence as to the identification of some thirty shore birds that had been seized by the officers of the association in carrying out the provisions of the provincial game laws.

Permits and Licenses

One hundred and sixty-three permits were issued allowing the holders to take birds for scientific purposes and 21 permits allowing the capture of protected birds for banding purposes. The following numbers of permits allowing the capture and possession of migratory birds for propagating purposes were issued during the year: 7 allowing the possession of migratory birds in British Columbia, 23 allowing the possession of migratory birds in Ontario, and 33 allowing the capture and 175 allowing the possession of migratory birds in the other provinces of Canada. Four permits allowing the killing of migratory birds found injurious to fishing interests and 4 allowing the killing of migratory birds found injurious to agricultural interests were issued from this office during the year. In addition, 68 taxidermists' licenses were issued.

Copies of the permit principles which form part of each of the scientific permits issued by this branch are being distributed as a circular with each scientific permit issued by the state of California, due credit being given to the Department of the Interior, Canada.

Advisory Board on Wild Life Protection

During the year this board held five meetings. It now includes representatives from seven departments, the membership having been increased during the year by the addition of the following persons: Mr. Arthur Gibson, Dominion Entomologist, Department of Agriculture; Colonel A. B. Perry, C.M.G., Commissioner of the Royal Canadian Mounted Police; Dr. E. E. Prince, Dominion Commissioner of Fisheries, Department of Marine and Fisheries; and Mr. O. S. Finnie, B.Sc., D.L.S., Director of the Northwest Territories Branch, Department of the Interior. The Supervisor of Wild Life Protection, who had been acting secretary of the board, was appointed secretary.

Importation of Foreign Species

At the instance of the branch the Customs Tariff respecting the importation of birds and mammals was revised by the addition of the following to the prohibited list:—

(1) Aigrettes, egret plumes, or so called osprey plumes, and the feathers, quills, heads, wings, tails, skins or parts of skins of wild birds either raw or manufactured. This provision does not apply to:—

(*a*) the feathers or plumes of ostriches;

(*b*) the plumage of the English pheasant and the Indian peacock;

(*c*) the plumage of wild birds ordinarily used as articles of diet;

(*d*) the plumage of birds imported alive, nor to

(*e*) specimens imported under regulations of the Minister of Customs for any natural history or other museum or for educational purposes.

(2) Common mongoose or mongoose of any kind; common mynah, Chinese mynah, crested mynah, or any other species of the starling family; Java sparrow, rice bird, nutmeg finch or other species of the weaver bird family; European chaffinch; and great titmouse.

General

A number of petitions were received from different parts of Canada including Alberta, Saskatchewan, Quebec, and Nova Scotia, asking for the suspension or modification of regulations under different Acts, federal or provincial, respecting bird sanctuaries, protected birds, open seasons, or the whole or partial opening or closing of certain areas to hunting and fishing. In every case the petition was given the most careful consideration and the reasons for the decision arrived at explained to the petitioners. Some matters were still under advisement at the end of the year.

NORTHWEST GAME ACT

On 1st January, 1922, the administration of the Northwest Game Act passed from the National Parks Branch to the newly created Northwest Territories Branch. The transfer included the administration of the Wood Buffalo herd near Fort Smith, Northwest Territories, and the reindeer herd at Lobster Bay, Quebec, a herd which is to be used for developing the Northwest Territories. Assistance was given the new staff in handling the work and acquainting them with procedure.

Licenses and Permits.—Licenses under the Northwest Game Act have been issued during the year as follows:—

Hunting and Trapping: Residents, 113; non-residents, British, 17; non-residents, non-British, 10.

Trading and Trafficking: Residents, 160; non-resident, British, 2; non-resident, non-British, 1. The revenue received from these licenses amounted to $2,151.

The following is a statement of the game taken in the Northwest Territories under the Northwest Game Act licenses as shown by returns received during the fiscal year 1921-22, with the average value and approximate total value of the furs secured:

Animal	Hunting and Trapping	Trading and Trafficking	Totals	Approximate value of pelts	
				Average	Total
	No.	No.	No.	$ c.	$ c.
Moose	34	22	56		
Caribou	371	431	802		
Deer	40	30	70		
Mountain sheep	6	5	11		
Mountain goat	4		4		
Otter	9	54	63	24 25	1,527 75
Beaver	126	1,908	2,034	15 00	30,510 00
Marten	847	4,344	5,191	37 50	194,662 50
Fisher	6	12	18	48 75	877 50
Mink	647	4,012	4,659	12 00	55,908 00
Muskrat	7,970	79,941	87,911	1 60	140,657 60
White fox	3,001	12,684	15,685	37 50	588,187 50
Wolves	188	149	337	7 50	2,527 50
Wolverines	77	114	191	6 00	1,146 00
Lynx	23	94	117	18 00	2,106 00
Ermine	1,339	6,181	7,520	85	6,392 00
Bears	44	702	746	12 00	8,952 00
Skunks	17	32	49	3 60	176 40
Foxes	229	1,036	1,265	15 50	19,607 50
Blue fox	1	8	9	90 00	810 00
Red fox	2	5	7	15 50	108 50
Cross fox		5	5	35 75	178 75
					1,054,335 50

The wolf bounty paid during the year amounted to $3,320. covering payments of $20 each for 166 wolves.

There have been two convictions for violation of the Northwest Game Act during the year. Fines amounting to $150 were imposed and 5 white fox skins seized.

Reindeer Herd.—The reindeer herd at Old Fort, in the province of Quebec, has been cared for as usual by a staff consisting of a supervisor and three men. The herd according to the latest returns consists of about 167 animals all of which, the supervisor reports, are in good condition.

PROPOSED EASTERN PARKS

The great benefits accruing from the National parks make it seem more and more desirable that these should be established more generally throughout Canada. As has been pointed out in previous reports it is especially important that reservations for public enjoyment should be made within reach of our large centres of population. These would be undoubtedly of great benefit now but they are bound to be of immensely greater value as our population increases and the great hinterland of Canada disappears. Throughout Ontario and the eastern provinces there are still wilderness areas that are specially adapted for recreational purposes and that could be acquired now and set aside at slight expense. If considered only as an attraction to foreign tourists and a means of disseminating tourist revenue more widely throughout the country they would be eminently worth while. But their greatest value and the most important reason for setting them aside must be their benefit to Canadians themselves. Deep down in every man is the craving for the beauty of nature and for the freedom of life in the out of doors. The cramped life of city workers, their insufficient opportunities for vigorous play in the open are resulting in a lowering of vitality that must in the end weaken the fibre of the race. Mr. Herbert Hoover in a report to the Federation of American Engineers, recently pointed out

the immense waste due to preventable diseases. He estimated the economic loss on this continent at over three billions, three hundred millions, approximately two billions of which is among those gainfully employed. The chief source of this loss arises from what is known as degenerative diseases, or diseases that are fundamentally due to a lack of vitality. The changes in human environment since the introduction of machinery have been so rapid and so sweeping that the human organization has not yet learned how to adapt itself to the new conditions. Yet the long history of the processes of nature shows that the species which fails to adapt itself to a changing environment inevitably goes under. There is no question of more fundamental national importance than the maintenance of the vitality and virility of the race and everything that contributes to that end must constitute a sound national policy.

As a first step in the programme of extension of national parks to the East it has been suggested that an area of sufficient size in the Laurentian region within reach of the large centres of population of Eastern Canada should be devoted to this purpose. The commercial benefit to the country would be very considerable on account of the tourist revenue that would result but the benefit to city workers who could reach a reservation of this kind in a few hours time would be of far greater importance.

It is also very desirable that areas should be set aside in the Maritime Provinces at an early date including some part of the beautiful sea coast and the original forest if any area where this remains can be secured.

PUBLICITY DIVISION

For the first time since the outbreak of the war it was possible to devote part of the appropriation to publicity. This was most necessary as our supply of literature of every kind was practically exhausted. A new and enlarged edition of the "Glaciers of the Rockies and Selkirks", by Prof. A. P. Coleman, was issued and distributed and an attractive descriptive guide to the parks along the Canadian Pacific main line entitled, "Through the Heart of the Rockies and Selkirks", was published. Material was also collected for other necessary publications including a small pocket information folder on the Banff park, intended chiefly for motorists.

During the Winter Carnival at Ottawa in January a large exhibit was prepared and placed in the entrance hall of the Central Station. It consisted of a large painted drop of Mount Edith Cavell, Jasper park, with a miniature forest in the foreground disclosing a tepee beside a camp-fire which by an ingenious arrangement of chemicals appeared to give off real smoke. The reverse side of the exhibit was filled in by a large panel in which was inserted a beautifully painted transparency of the globe with the legend "Canada's National Parks the Playground of the World". This was flanked by two columns in which transparencies of striking park scenes were inserted. A fine specimen of a mounted buffalo completed the exhibit, which attracted a constant stream of visitors throughout the carnival and elicited much favourable comment.

A somewhat similar exhibit on a smaller scale was also sent to California and was shown in several of the principal coast cities and also in Vancouver. The interest in the Canadian National Parks created by this exhibit led to many inquiries and requests for literature and a number of parties including the Seattle Alpine Club arranged for a trip to Jasper National park as a result. Arrangements were also made whereby moving picture films of some of the mountain parks were shown at several of the Pacific coast theatres and the cordial co-operation of the officers of a number of prominent educational organizations and institutions, such as the California Audubon Society and the universities of California and Southern California, who arranged to show slides and plans of the Canadian parks in connection with their work, was secured.

Through the courtesy of the Exhibition Branch, Department of Agriculture, a special display of National Park scenes was also shown in connection with the Southern Florida Exposition at Tampa, thereby reaching another large section of the wealthy travelling class.

A series of illustrated lectures on the national parks was given in western Ontario during the late winter and spring months by Captain F. G. Forster, B.A., whose services were loaned to this Branch by the Soldiers Settlement Board. Captain Forster appeared before numerous educational and other organizations and showed films of the scenery, the wild life, the government buffalo herd at Wainwright and the bird sanctuaries, reaching, it is estimated, about 60,000 persons.

Several thousand lantern slides, with accompanying lecture notes, were set out in response to requests for prepared lectures from Canada, England, the United States and even Australia.

HISTORIC AND PREHISTORIC SITES

In connection with the work of marking and preserving historic and prehistoric sites of national importance, very satisfactory progress was made. One general meeting of the Historic Sites and Monuments Board, which acts in an advisory capacity to the department in connection with this work, was held at which all sites under consideration were reviewed with the object of defining their importance from a national point of view. Requests for the co-operation of provincial and local historical societies and associations which are interested in the preservation of Dominion landmarks met with favourable response and 40 of these are at present assisting in the national work.

An artistic design for a tablet, emblematic of Canadian history, has been purchased from the well known Canadian artist, Major Ernest Fosberry, R.C.A. These tablets are now being cast in bronze and will be used in connection with the marking of the above sites.

Cairns of attractive design, constructed of rough field stones, will be erected on several sites, to carry the standard bronze tablet. Where these are not suitable it is proposed to erect monuments. A competition for designs for suitable types of landmarks has been organized and is at present being carried out.

An educational campaign is being carried on relative to the various sites selected for action, with a view to stimulating public interest and creating a national consciousness with respect to the important events connected with Canadian history. Small pamphlets have been published and are available for distribution containing a history of the sites of Fort Anne, Fort Lennox, Fort Chambly, and Port Dover. Others will be prepared and published as the work progresses. Copies may be had upon application to the Commissioner, Canadian National Parks, Ottawa.

The attention of the department has already been called to 610 sites and 82 have been selected to receive immediate attention. In the last report the steps that had been taken with regard to a number of these were reviewed. The following shows the additional action taken this year:—

*Maritime Provinces**

Louisburg, N.S.—Area approximately 90 acres. Ruins of old French fort, built in 1720-40, once the stronghold of France at the threshold of the continent, played an important part in the events which led to withdrawal of French rule from Canada. A survey of the site has been carried out by the Department of Railways and Canals which has furnished this department with the returns and plans and has promised to transfer to the control of this department an area of approximately 60 acres which is at present under their control.

*Where historical details of site were given last year these are not repeated.

Fort Edward, Windsor, N.S.—Area 27 acres. Transferred by Order in Council from the Department of Militia and Defence for preservation and restoration. The remains include the original blockhouse still intact and the ruins of the officers' quarters, recently partially destroyed by fire. A part-time caretaker has been appointed.

Fort Moncton, about one and a half miles from Fort Elgin, N.B.—The site is privately owned but as the proprietor is averse to disposing of it, it has been decided to place the memorial on the property owned by the Department of Marine and Fisheries, permission to this end having been secured.

De la Verendrye, Three Rivers, P.Q.—Pierre Gauthier de Varennes, son of the Governor of Three Rivers, was born at that place November 18, 1685, and saw service in France during the war of the Spanish Succession. He returned to Canada in 1712 under the name of la Verendrye, and established a fur trade on the St. Maurice river. In 1727, he was sent to take charge of a trading post at lake Nipigon and later undertook an expedition to discover what he called the "Pacific Ocean." In 1737 he built a fort at Portage la Prairie (Manitoba), from which several campaigns of exploration were carried out as far as the Rocky mountains. He was recalled in 1744 and died at Montreal in 1747, while preparing a further expedition to the Northwest. The remains of the foundations of his birthplace, situated in a beautiful park overlooking the St. Lawrence river, in the city of Three Rivers, are still visible and an appropriate tablet has been placed on one of the pillars supporting the iron railing which surrounds the park.

Fort Lennox, Ile-aux-Noix, P.Q.—One of the forts which formed the line of defence in the Richelieu valley. Remains consist of earthworks and a number of well preserved buildings. This was a massive old fortress situated about 12 miles below the outfall of lake Champlain in the Richelieu river and 10 miles from the Canada-United States border. It was built in 1609 by the French and famous in the conflicts of 1760, 1775, and 1812. It continued to be garrisoned until the withdrawal of the Imperial troops in 1869. On May 18, 1921, the site, comprising 5 islands and covering an area of approximately 210 acres, together with the buildings thereon, was transferred from the Department of Militia and Defence to the Department of the Interior for preservation and restoration. A custodian has been appointed to keep the property in order, and a museum opened in the fort wherein have been placed Indian relics, military buttons, bayonets, crests, badges, and plates, etc., silver and copper coins, etc. A pamphlet recently published containing a full history of the fort may be obtained upon application.

Fort Chambly, Chambly, P.Q.—One of the most venerable and picturesque ruins on the American continent. Built of palisades in 1665; burnt by Iroquois in 1702. Rebuilt of stone 1709-1711. Taken by the Americans in 1775, and interior buildings burnt in 1776. Restored in 1777; abandoned definitely in 1850. The site was transferred to the Department of the Interior in 1921. Steps have been taken to arrest the disintegration of the massive walls, and to redeem the cemetery from neglect and decay. A valuable museum containing articles of rare interest has been added to the fort. A pamphlet has been prepared containing complete data and information relative to the fort which may be secured upon application.

Fort Laprairie, Laprairie, Quebec.—Built in 1687, the scene of an unsuccessful attack by New England States Militia troops in 1691. The fort was a refuge for the inhabitants during the wars of 1687-1713. It is proposed to erect a monument and tablet in a public park known as Foch square, the necessary lease of occupation having been executed with the municipal authorities for the required area.

Duluth's Birthplace, Montreal, P.Q.—Corner of St. Paul Street and Place Jacques Cartier, Montreal. Site of residence of Daniel Greysolon Duluth, who

died February, 25, 1710. One of the explorers of the Upper Mississippi, after whom the city of Duluth was named. A marble tablet has already been erected in commemoration of his services to the Dominion on the building at the intersection of the above streets.

Eastern Ontario

Glengarry House, Ont.—Site of the residence of Lt.-Col. John McDonnell, a noted pioneer in the settlement of the province, first speaker of the Legislative Assembly of Upper Canada and commanding officer of the 2nd Battalion, Royal Canadian Volunteers 1796-1801. Situated some 200 yards from the main highway, near Cornwall. Only ruins of walls remain. A cairn with a commemorative tablet is to be erected on the site, which has been donated for this purpose by Mrs. Annie J. Craig, the present owner.

Chrysler's Farm, Ont.—Situated about 5 miles east of Morrisburg, adjacent to the Montreal-Toronto highway. A monument consisting of an obelisk, on either side of which are two guns, was erected in 1895 by the Dominion Government to commemorate the victory over invading United States forces at the battle of Chrysler's Farm, November 11, 1813. This site, comprising an area of .23 acre which is enclosed with a chain fence, has been transferred to the control of this department by the Department of Militia and Defence.

Western Ontario

Mission of Ste. Marie II, Christian Island, Ont.—Situated near Penetanguishene, on an Ojibway Indian reserve. The Indians by resolution, have granted this department permission to carry on the proposed work of restoration, etc. This second fort, of stone, 72 feet square, flanked by four bastions, was burnt in 1649 by the missionaries after the burning of Ste. Marie I (which was on the Wye river near Midland, Ontario), and was evacuated on June 10, 1650. The ruins are to-day easily traceable though much overgrown with trees and brush. A memorial tablet will be placed on the site and the property cleared, drained and fenced.

Port Dover (Site of the Cross) "Cliff Site".—Situated in the village of Port Dover on a flat-topped point of land where the river Lynn enters lake Erie on property owned by the Grand Trunk Railway Company, which has signed a lease of occupation covering an area of .17 of an acre. An artificial stone cross, 16 feet high, has been erected to signalize the taking possession, in the name of King Louis XIV of France, of the lands of the lake Erie region by the Sulpician priests, Dollier and Galinee, on March 23, 1670, during the exploration of the Great Lakes. A commemorative tablet is to be placed on the pedestal of the cross and the site enclosed with an artistically designed fence. A pamphlet recently published containing a history of the site may be obtained upon application.

Port Dover, Ont., "Wintering Site".—Situated about three-quarters of a mile from the "Cliff Site" at the mouth of Black creek on property owned by Mr. A. Ansley. Site of the wintering place of Dollier and Galinee and seven other Frenchmen in 1669-1670. An area, on which a cairn with a commemorative tablet will be erected, has been donated to the department by Mr. Ansley.

Niagara Front

The historic sites of national significance along this front between lake Erie and lake Ontario have already been fairly well indicated by the erection of markers or tablets. It has been decided to carry out the completion of this work by taking action in regard to the following sites:—

Chippewa.—The most ancient village on the Canadian frontier. Situated on the south side of Chippewa creek in an open field near Niagara Falls. Scene of a desperate fight on July 5, 1814, between Canadian and United States troops, with serious losses of men on both sides. A monument is being constructed by the Niagara Falls Park Commission adjacent to the main boulevard on which one of the department's standard commemorative tablets will be placed.

Frenchman's Creek.—Situated near Bridgeburg. Site of the action of November 27, 1812, between Canadian and United States troops, also of landing place of Fenians, May 31, 1866. It is proposed to place a commemorative tablet in honour of the officers and men of the Royal Artillery, 49th Regiment, and Norfolk Militia, killed in this action, on a monument which is being erected by the Niagara Falls Park Commission.

Vrooman's Battery.—A suitable standard is being erected by the Niagara Falls Park Commission on which a commemorative tablet will be affixed.

Battle of Cook's Mills.—A monument and tablet, enclosed by an appropriately designed fence, will be erected on the site which has been donated by Mr. Roy Matthews.

Battlefield of Fort George.—Situated outside the town of Niagara. Landing place of invading United States troops and battle of May 27, 1813, resulting in the capture of Fort George. A plot of land 25 feet square on the military property at Fort Mississagua has been transferred from the Department of Militia and Defence to the control of this department. A monument and commemorative tablet will be erected.

Battlefield of Beechwoods or Beaver Dam.—Situated on the Mountain road near Thorold. Site of the action of June 24, 1813, between the invading United States troops and Canadian troops, the former being dispersed with heavy losses. A site has been donated by Mr. R. L. Peek, and a monument and tablet will be erected.

Site of Tete du Pont Battery.—Situated on Hog island at the mouth of the Chippewa river. Permission for the erection of a stone marker has been secured from the council of Chippewa, but action was deferred until the completion of the Hydro-Electric power canal on the island.

Sault Ste. Marie, Ont. (Lock Site).—Constructed by the Northwest Fur Company in 1797 and destroyed in July, 1814, by a force of United States troops. A portion of the old lock was uncovered in 1889 and later it was rebuilt of stone. A monument and tablet will be placed on the site, which is owned by the Lake Superior Paper Company, who have executed a lease of occupation covering the land.

Turkey Point.—Situated about 3 miles east of Port Rowan. To commemorate the encampment of Dollier and Galinee, in March, 1670; the passage of Major Gladwin and Sir William Johnson to obtain a treaty with the Indians in 1761; and of occupation by the British in war of 1812-14. A site for a monument and tablet has been selected on the reserve of Ordnance lands near the lakeside.

Glengarry Landing.—Situated between Minesing and Edenvale. Here Lt.-Col. Robert McDonall built the flotilla of boats with which he effected the relief of the British garrison at Fort Mackinac in May, 1814. Owing to its remote location, permission has been secured from the county council of Simcoe for the erection of a suitably inscribed stone marker near Edenvale bridge on the main travelled road.

WORK FOR THE FUTURE

The following historic sites have been transferred to the jurisdiction of this branch and will be suitably marked during coming seasons:—

Maritime Provinces

Fort Cumberland
Battle Ground of Grand Pré

Quebec

Battle Ground of Laprairie (2nd battle)
St. Maurice Forges
Battle Ground of Three Rivers
Fort Laprairie
Gaspé
Jacques Cartier Landing
Fort Remy
Fort Sorel
Fort Longueuil
Fort Gentilly
Fort Cuillerier
Fort Rolland
Fort Verdun
Fort Senneville
Fort Charlesbourg
Arbre-a-la-Croix
Tadoussac
Battle Ground of Riviere des Prairies
Site of Three Rivers Massacre
Three Rivers Platon and Fort
Fort St. John

Eastern Ontario

Old Simcoe Building, Kingston
Windmill Point
Glengarry Cairn

Western Ontario

Mission of St. Ignace
Weishuhn's Redoubt
Navy Island Shipyard
Port Arthur
Fort William
Fort Nottawasaga
Brock's Route, Port Dover to Detroit
Battle Ground of Moraviantown
Battle of the Longwoods
Fort St. Joe

Western Canada

Northwest Rebellion.—It has been recommended that the following sites, all in the province of Saskatchewan, connected with the rebellion, of 1885, should be marked:—

Batoche.—On the South Saskatchewan river between Prince Albert and Saskatoon.

Duck Lake.—About five miles northwest of Batoche.

Battle of Fish Creek.—Situated about ten miles from Batoche.

Clark's Crossing, now Clarkboro.—About nine miles from Saskatoon.

Battleford.—First seat of government of the Northwest Territories.

Cut Knife Hill.—About thirty miles west of Battleford.

Fort Pitt.—On the Saskatchewan river near Lloydminster.

Frog Lake.—About thirty miles from Fort Pitt.

Fort Prince of Wales, Manitoba.—Situated at Churchill, Manitoba. The most northerly fortress on the American continent. Built by the Hudson's Bay Company from 1733 to 1747. Destroyed by the French and never rebuilt. Within the ruined walls are 38 old guns and the remains of the factor's residence. By Order in Council of February 21, 1922, an area of 50 acres, on which the fort is situated, at the mouth of the Churchill river, was reserved for historic memorial purposes. Two enamelled signs have been affixed to the walls of the fort, announcing that it has been created a national historic site and forbidding the removal of any of the remains.

Fort Livingstone, Manitoba.—Situated on section 5, township 34, range 32, west of the Principal meridian near Swan river. Old Royal Northwest Mounted Police post and seat of government for the Northwest Territories. The site has been acquired for proper marking.

APPENDIX No. 1

REPORT OF THE SUPERINTENDENT OF ROCKY MOUNTAINS PARK, R. S. STRONACH, BANFF, ALBERTA

During the past season a right of way for an auto road around the animal paddocks was cut out and enough grading done to allow automobiles to make a circular trip. In this way much better views can be obtained of the different animals. These facilities have proved very popular with the thousands of visitors who find the animal enclosures one of the finest attractions in the park.

Three Rocky Mountain goats and one Rocky Mountain sheep were captured and added to the herds. In addition to these "Banff," the bull moose that escaped some years ago, returned and now seems to be quite at home.

The following is a list of the animals now in the enclosure: 7 buffalo bulls, 5 buffalo cows, 1 bull moose, 1 cow moose, 15 bull elk, 15 cow elk, 1 Persian ewe, 33 Angora rams, 33 Angora ewes, 9 Rocky Mountain rams, 7 Rocky Mountain ewes, 3 Rocky Mountain billy goats, 2 Rocky Mountain nanny goats, 3 bull yaks, 3 cow yaks.

The following animals were donated to other parks during the past season: City of Calgary, Alberta, 1 buck mule deer; Department of Agriculture, Dixon, Montana, U.S.A., 4 Rocky Mountain rams, 8 Rocky Mountain ewes; Buffalo Park, Wainwright, Alberta, 19 yaks; National Zoological Park, Washington, U.S.A., 1 bull yak; Zoological gardens, San Antonio, Texas, U.S.A., 1 Rocky Mountain ewe.

Government Baths.—The Government baths of the Upper Hot Springs and the Cave and Basin, still maintain their position as one of the most important attractions. Many times during the summer season the accommodation at the Cave and Basin was taxed to its limit. The total attendance was less than the previous year, but this is partially explained by the extremely cold weather experienced this winter (1921-22) which cut down the number of winter bathers. The attendance at the Upper Hot Springs also dropped off a little owing to the severe weather, whereas during the summer the number of bathers showed an increase.

The numbers of bathers at the two establishments were as follows: Cave and Basin, 41,675; Upper Hot Springs, 23,625. The places of residence of bathers at the Upper Hot Springs were: Canada, 23,364; United States, 212; England, 20; Ireland, 9; Scotland, 14; Australia, 6.

The receipts at the bath-houses for the year were: Cave and Basin, $10,403.35; Upper Hot Springs, $5,831.55.

The cave at the Cave and Basin proved very popular, approximately 25,000 visitors registering during the season.

Camping Ground.—The public camping ground, which is situated amid surroundings of unsurpassed beauty near the Bow falls and supplied with good running water and sanitary facilities, is being patronized more and more each year by motor parties who visit the park.

The camp site has been in existence five years and the camping permits each year have steadily increased as the figures below show. The large majority of these visitors are Canadians. Following are the numbers in the fiscal years ended on March 31 in the year named: 1918, 73; 1919, 57; 1920, 77; 1921, 200; 1922, 338.

Fishing.—Excellent fishing was obtained last season in nearly all the lakes and streams in the park and no difficulty was experienced in catching the maximum allowed for one day.

The Dominion fish hatchery at Banff continued its good work, a greater number of game fish being hatched out and liberated than in any previous year. The following fry were liberated during the season: Salmon trout, 136,756; Atlantic salmon, 133,600; rainbow trout, 649,752; cut-throat (or red-throat) trout, 318,825. In addition, 60,725 cut-throat trout were liberated in the Spray lakes from the Spray Lakes hatchery. Visitors to the number of 3,987 registered at the hatchery at Banff.

Forest Fires.—During the season there were 24 forest fires. Seven of these were started by sparks from passing engines. The only fire which could be considered of a serious nature occurred on June 23 on the northern slopes of Rundle mountain, giving the warden staff considerable trouble and burning over approximately 150 acres of land before it could be got under control.

Fire Fighting Equipment.—During the season a fire truck was added to the fire-fighting equipment, and has already proved of great value.

Game Protection.—No infractions of the game laws were recorded during the season.

Golf Course.—The new course has been finished with the exception of a few bunkers on the old part of the course, which, if constructed, would have interfered with the use of that course. The old road which cut across the course was all filled in and seeded and the Loop Drive diversion, to avoid the new course, completed.

Health.—Health conditions were exceptionally good in the park during the past year. There were no epidemics and very few cases of infectious or contagious diseases. All dairy cows were again tested for tuberculosis by an officer of the Department of Agriculture, assisted by our inspector. Only one animal which reacted to the test was found in the park, which indicates the healthy condition of the herd supplying milk to the residents of the different Government townsites.

Motor Traffic.—The popularity of the motor trip from Calgary to Banff is indicated by the large increase in the number of cars passing through the eastern entrance to the park. During the year, 3,492 cars entered by way of Kananaskis carrying approximately 15,000 persons. The following is a summary of the places from which these cars came: Calgary, 2,235; other points in Alberta, 890; other points in Canada, 216; United States, 151.

Museum.—During the season a large number of tourists visited the museum and a number made use of the collections for indentification purposes. The following birds and mammals were added during the year: Richardson's grouse, baldpate duck, water ousel, Canada jay, Clarke nutcracker, Hungarian partridge, skunk. In addition to these specimens a number of rare insects, spiders and butterflies were procured, also certain plants as well as fossils and rocks, specimens of which were missing from our collections.

Plants.—Owing to the fact that climatic conditions were favourable for plant growth, flowers and plants peculiar to the mountains were much more numerous than during the previous year and some very good specimens were obtained for the museum and by visiting botanists. Prof. R. B. Thompson and Prof. E. M. Walker of the University of Toronto, and Dr. F. J. Lewis of the University of Alberta, spent several days collecting and were successful in obtaining some rare specimens.

Birds.—Mr. J. A. Munroe, Chief Migratory Bird Officer for the Western Provinces, spent some weeks in Banff during the winter months and much valuable information was obtained from him concerning the increase of bird life in the park and also with regard to the classification of the specimens in the museum.

Building Permits.—During the year 49 building permits were issued, the estimated cost of the work covered by these permits amounting to $121,075.

Grazing Permits.—Seventy-three grazing permits were issued, covering the grazing of 323 cows, and 432 horses. The number of animals covered by these permits shows a large increase over the number for which permits were issued during the previous year.

Timber Permits.—The number of permits issued to residents for the cutting of dry wood in the vicinity of Banff totalled 62, covering approximately 850 cords of firewood. Twenty-six permits covering quarter sections were also issued and approximately 3,000 cords of timber were cut on these areas.

Roads and Bridges.—A very extensive programme for the maintenance of roads and bridges was undertaken and the results obtained were very satisfactory. Four road gangs were employed during the summer months. During the season the Castle-Lake Louise Highway was opened to motor traffic and soon became very popular. In addition to the gangs mentioned above, two sectionmen were stationed at points approximately ten miles apart on all the roads, and by their efforts the highways were maintained in an excellent state of repair. During the winter months gangs were employed on the Banff-Castle road and the Tunnel Mountain drive blasting away points of rock, etc.

The new bridge over the Bow river at Banff was completed during the summer months and now constitutes one of the most attractive highway bridges in Canada. A new bridge over the Cascade river near Anthracite was also finished in the early summer months opening up to the motorist one of the most beautiful spots, from a scenic standpoint, in the park.

Telephones.—With the completion of the remodelling of the Banff telephone system it was extremely difficult to keep up with the applications for telephone service, as the system practically doubled during the season. The system is now a very efficient one.

Banff Townsite.—The usual general maintenance work on the streets of Banff was carried on and in addition all streets of Banff were given a coat of asphaltic oil. The new diversion from Lynx street to the Banff-Castle highway was completed. The demand for building lots in Banff is becoming greater each year.

A new covered curling rink was erected on the Recreation Grounds, and a most successful bonspiel was held in February.

Canmore Townsite.—Work on the new lighting system was started in the late fall and completed about the first of January. Service is now being given to approximately 70 of the residences and applications for service are still being received.

Lake Louise Townsite.—Although applications have been filed for lots in this townsite no active building has yet been started. It is expected, however, that some building will be undertaken during the coming season as the number of tourists to this section of the park has increased greatly since the road between Banff and Lake Louise was opened to motor traffic.

Trails.—The following new trails were constructed: trail from Bryant creek along Marvel lake over Wonder pass to mount Assiniboine, a distance of 5 miles; trail from the mouth of Bryant creek to Whiteman's pass along Whiteman's creek, a distance of 8 miles; trail from the Red Deer summit down the Red Deer river to Scotch Camp, a distance of 16 miles; trail from Scotch camp to Windy camp on the Panther river, a distance of 15 miles.

Visitors.—In the month of April their Excellencies, the Duke and Duchess of Devonshire accompanied by certain members of their family and suite, paid their farewell visit to Banff. They remained three days before resuming their journey to the coast.

Waterworks.—During the winter months of 1920-21 a new dam at the intake works was completed. It is expected that many of the difficulties experienced when the old dam was in use will now be entirely eliminated.

Zoo.—Great interest was taken in the Zoo last season by tourists. It was not an uncommon sight to see from 100 to 150 people congregated around the cages during feeding hours. A number of valuable specimens were procured during the year, the most important of which were: 1 pair mountain lions, 1 green monkey, 1 vervet monkey, 4 Rhesus monkeys, 1 pair timber wolf pups, 1 pair coyote pups, family of skunks, 1 pair Amherst pheasants, 1 pair Chinese pheasants, 1 pair Mongolian pheasants, 1 pair prairie chickens, 1 golden eagle.

Winter Carnival.—The Winter Carnival was held in Banff during the week commencing January 30. Weather conditions were ideal during the latter part of the week and large and enthusiastic crowds watched the different events.

APPENDIX No. 1a

VISITORS TO ROCKY MOUNTAINS PARK FROM APRIL 1, 1921 TO MARCH 31, 1922
HOTEL REGISTRATIONS

Hotel	Home Country of Visitors				Conducted Parties	Total
	Canada	United States	British Isles	Other countries		
Banff Springs Hotel, Banff	2,824	9,225	434	407	89	12,979
Chateau Lake Louise, Lake Louise	2,265	12,463	344	422	320	15,814
King Edward Hotel, Banff	2,995	336	255	83	.....	3,669
Bretton Hall, Banff	2,191	604	58	42	.....	2,895
Mount Royal Hotel, Banff	1,215	1,052	.....	495	.....	2,762
Homestead Hotel, Banff	1,463	311	23	19	.....	1,816
Alberta Hotel	983	203	.....	14	.....	1,200
Hot Springs Hotel, Banff	387	15	.....	3	.....	405
	14,323	24,209	1,114	1,485	409	41,540

SUMMARY

Total hotel registrations	41,540
Summer cottagers, guests at boarding houses and campers (estimated)	6,000
Motorists	15,000
Excursionists	9,000
Grand total	71,540

APPENDIX No. 1b

The Alpine Club of Canada

(Report prepared by the Secretary)

The club house had a very successful season and was never without guests during the entire summer, some making long stays. As usual it was the rendezvous of very many strangers seeking information about the Canadian mountain regions—information which is apparently available nowhere else. Such visitors are gladly welcomed as it is one of the main objects of the club to make the mountain regions of Canada known to all the world.

The usual local climbs were made. Miss Gold and Messrs. West and Wates climbed mount Edith. They experienced no difficulty and had an enjoyable time. Dr. Hickson, Mr. L. S. Crosby and Mr. Edouard Feuz made the first ascent of the pinnacle beyond mount Louis which has been an object of interest to climbers for some time. It proved a fine rock climb. Later on Mr. Morrow made the ascent of one of the Three Sisters at Canmore.

An added attraction to the building was the installation of the bath system so kindly subscribed for by the overseas members.

Mr. A. L. Mumm, a life member and vice-president of the English Alpine Club, gave a number of magnificent photographic enlargements of views of the mount Assiniboine country. These are framed and hang in the dining room together with the mount Robson pictures by the same artist. As all the pictures in the dining room are by him it is named the Mumm collection. Mr. W. D. Wilcox presented a set of his beautiful pictures of the mountains.

Professor Charles E. Fay, another honorary member, presented the club with the ice axe of Peter Sarbach, bearing the following inscription: "This axe was the property of Peter Sarbach, the first Swiss guide in the Rockies, in 1897. On the breaking of the shaft of the Appalachian mountain club axe, Sarbach loaned it to C. E. Fay, who used it for the first ascents of mount Lefroy (August 3), mount Victoria (August 5) and mount Gordon (August 10)." The club will keep this axe in the Banff club house where all may see the trophy of an earlier day so graciously given by our old friend. The visitors to the club house came from all over Canada and the United States as well as the United Kingdom of Great Britain and Ireland.

Report of the Annual Camp at Lake O'Hara

(Prepared by the Secretary)

The sixteenth annual camp of the Alpine Club of Canada was held in the meadows near lake O'Hara from July 26 to August 6. It is a curious coincidence that four camps have been held in this neighbourhood at intervals of four years. In 1909 we met on the same site and enjoyed perhaps the most successful of any of our camps. That year the British association met in Winnipeg and the club extended an invitation to twenty British mountaineers. The veteran, Edward Whymper, was there and many others, several of whom have repeated their visits to our great pleasure.

This year an invitation was extended to the veteran climbers in the Canadian Alps from the United States. Our honorary member, Professor Charles E. Fay,

organized the representation and if the fates were against his success in gathering together all whom we might have wished to see, the attendance was fit though few. There were present besides Professor Fay himself, Rev. Dr. H. P. Nichols of New York, Mr. B. S. Comstock of South Orange and Mr. W. D. Wilcox of Washington. The "Rockies of Canada" by Mr. Wilcox is well known and his wonderful photographs of the Canadian Rockies are admired wherever they are seen.

No more fascinating camp site can be found in the mountains. Lake O'Hara won the heart of the great painter Sargent, who declared it the most beautiful lake he had ever seen. To appreciate it fully it has to be lived with and seen in every light—in sunshine and in storm.

The weather afforded all varieties of condition, from warm summer to snow, but as a matter of fact, there were only two bad days. The accident to Dr. Stone cast a shadow over the camp and necessitated taking away one of the Swiss guides, thus curtailing the more serious climbing, although all the newcomers who wished were able to graduate.

The camp was a fine centre for excursions and climbs of all kinds of difficulty. The famous two-day expedition was repeated four times. Leaving O'Hara in the morning, Abbot pass, the Victoria and Lefroy glaciers, and Mitre pass were crossed to Paradise valley, where the night was spent in a comfortable bivouac camp. Next day, by way of the Wastach, Wenkchemna, and Opabin passes and glaciers, O'Hara was again reached. There is probably no other expedition in the mountains which reveals the heart of things so fully with so little labour.

Mount Odaray was the qualifying climb and found to be of great interest. Huber which was the graduating climb in 1909 was in no fit condition.

A new policy, as outlined in the circular, was developed which was found to work admirably. Before inexperienced members were allowed to attempt the graduating climb they were sent on preparatory instructive climbs and according to reports of their fitness were permitted to attempt graduation. No one more appreciated the advantages of this scheme than the novice himself, and the knowledge thus acquired made his test climb a thing of joy.

The most valuable training climbs were the Opabin pass and mount Wiwaxy. On the latter some very interesting rock work can be obtained. In addition to mounts Odaray and Wiwaxy, climbs were made of mounts Victoria, Schaeffer, Yukness, and Park mountain. The last was found to be by no means as easy as anticipated. One party came into camp from Field by way of Duchesnay pass and did not think the interest equalled the labour. A trip, as in 1913, was made to lake Linda under the kindly guidance of Professor Fay and as in 1913 was a little late in returning.

The camp fires were as enjoyable as ever and the reminiscences of the pioneers were of the utmost interest. The lovely voice of Mrs. Burnett will linger long in the memory of those who heard it. There were 157 placed under canvas, among them representatives of the Alpine club (England), the American and Swiss Alpine clubs, the Appalachian Mountain club, the Green Mountain club, the Sierra club, and the Royal Geographical Society.

Those present were drawn from the following: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, England, California, Connecticut, District of Columbia, Massachusetts, Michigan, Minnesota, New Jersey, New York, and Pennsylvania.

APPENDIX No. 2

REPORT OF THE SUPERINTENDENT OF YOHO AND GLACIER PARKS, E. N. RUSSELL, FIELD, B.C.

The first work of the fiscal year was in and around the townsite of Field. Streets were repaired and put in shape as also were the plank sidewalks in the townsite. Permanent approaches were put in at each end of the new bridge over the Kicking Horse river at Field.

Road repairs were commenced as soon as possible in the spring, when the Yoho, Emerald lake, Hector, and Ottertail roads were thoroughly gone over and put into good condition. This year, for the first time in this park, motor trucks were used by the department in connection with road work. They proved most useful and enabled the handling of the major portion of road repairs from town, in place of having to establish small temporary camps a few miles out, thus saving the overhead charges necessary to the running of a camp.

Yoho Park.—A good deal of work was done on the park trails in addition to the general repairs which are made almost daily by the wardens in the course of their patrols. The major portion of the trail repairs this year were in the vicinity of Field and Wapta Camp, as owing to the Alpine club camp this year at lake O'Hara there was more travel on these trails than usual.

During the summer months a new garage and implement house was constructed in the townsite of Field to house park cars and other equipment. Two new streets were opened up in the townsite on the area recently taken over from the Canadian Pacific Railway Company and it is anticipated that the lots on this area will shortly be made available for application.

The stocking of the waters in the park with suitable fish was continued again this year: 25,000 rainbow trout were placed in Wapta lake, 25,000 in Emerald lake and 20,000 in Shorbrooke lake. Wapta lake was suitably screened at the outlet by the Canadian Pacific Railway to prevent the young fish from going down the waters of the Kicking Horse river. In previous years both Wapta and Emerald lakes had been stocked with cutthroat (or red-throat) trout but after a thorough examination of the waters the feeding grounds and general conditions by officers of the Dominion fish hatchery at Banff, the rainbow trout were considered to be better adapted to these waters and it is anticipated that in a few years the results of this stocking will be noticeable.

Game of all kinds is increasing by leaps and bounds in the park. It is now barely two years since total protection of game was begun and the game placed under the control of the Dominion Government and subject to the park regulations; and, whereas two years ago the larger kinds of game were rarely seen in the park, now they are an every day sight. Moose are particularly plentiful and frequent the flats around Ottertail and Leanchoil in great numbers, while deer are frequently seen in herds of from eight to twelve. Goat and bear are also numerous, in fact the warden service has had to dispose of several bears which at different times became a nuisance, hanging around camps or settlements for the garbage they were able to obtain. Elk and sheep have been seen in the park during the past season but these probably came in from the Rocky Mountains park and more than likely returned there again.

There was only one small forest fire caused by lightning, near the ten mile post in the Yoho valley, in which there was no destruction to timber. No railway fires occurred within the boundaries of the park and apparently the educational propaganda conducted by the department for a number of years past is now having its effect.

The number of tourists visiting the park this year was up to the maximum of the accommodation and many had to be turned away for lack of a place to stay. The Railway Company are, however, increasing their accommodation considerably for next year. Additions were made to the Emerald Lake Chalet during the winter months which will increase the accommodation from thirty to approximately one hundred guests. A large room has been built which can be used for dancing or similar purposes, and modern plumbing has been installed throughout the buildings. Permanent camps are being established by the Canadian Pacific Railway at lake O'Hara and in the Yoho valley while a half way camp is to be established at Summit lake. There will thus be a series of hotels or camps dotted about the park. Visitors at Emerald Lake Chalet totalled 1,110 of whom 212 were Canadians, 801 came from the United States, and 97 from other countries.

Revenue returns in this park, will show an advance over those of last year of about 50 per cent. This is principally due to the increase in the amount of dead timber being removed from the park.

Glacier Park.—Work in this park commenced with the repairing of the road from Glacier station to the Glacier hotel, after which the road to the Nakimu caves was opened up and the new road to Rogers pass from the hotel completed. Motor cars were used for the first time on these roads and greatly facilitated the handling of passengers between the station and the hotel. A sight-seeing car was run between Glacier and Rogers pass making daily trips which proved very popular on account of the magnificent scenery that can be viewed from almost any point along this route.

On trails a considerable amount of repair work was done. There are now approximately 115 miles of trails in this park, the majority of which are in first class condition.

A new trail was constructed between Flat creek and Glacier along the Illecillewaet valley, a distance of about seven miles. The work of making an accurate measurement of the length of all trails and posting up the mileage at each mile has been begun.

At the Nakimu caves, the development work started last year was continued with good results. The caves from No. 4 entrance were further explored and a considerable additional distance was made accessible to the public by the construction of a series of stairways, cement walks, handrails, etc. A record number of visitors was shown through the caves. The number becomes greater each year as the caves become better known and more fully developed.

There was only one small fire in the park which was started by lightning not very far from the hotel and caused the guests there to spend a few anxious moments. The wardens were, however, quickly on the spot with a gang of fire-fighters, and it was not long before they were able to get it under control.

Game in this park, as in the Yoho, is on the increase, caribou being one of the most plentiful species. Two cases of infringement of the game regulations by trapping were taken up during the year and convictions secured in both.

Visitors at Glacier House totalled 3,223, of whom 300 were Canadians, 2,819 came from the United States, and 104 from other countries.

APPENDIX No. 3

REPORT OF THE SUPERINTENDENT OF MOUNT REVELSTOKE NATIONAL PARK, F. E. MAUNDER, REVELSTOKE, B.C.

The season's work commenced during the last week of April when a few men were set at work following up the melting snow in order to keep ditches and culverts open. This must be done every spring to prevent serious washouts on the park road. When the danger from washouts was over the sectionmen set about the cleaning of ditches and the surfacing of the roadbed with material from the banks. This work was carried on throughout the season and the road maintained in a fine condition. Citizens of Revelstoke came up in large numbers in their cars and derived much pleasure from the magnificent drive.

As soon too as the western road from Revelstoke to Sicamous and Vernon is completed, Revelstoke will have motor communication with the greater part of interior and southern British Columbia and large numbers of visitors will no doubt make the motor trip up the mountain to the park.

Trails.—The trail from Revelstoke to lakes Eva and Miller was gone over and repaired. A new trail was started from Greely creek, the end of the provincial wagon road, towards the north boundary of the park at Silver creek. The year's work represents about 7 miles and it is hoped to complete it by the fall of 1922. This will make it much easier to handle forest fires that may start on the eastern slope of the park.

The telephone line from Revelstoke was extended to Balsam cabin at the summit, so that the warden will be able to communicate directly with headquarters in case of an emergency.

Game.—There were no infractions of the game regulations during the year which seems to indicate that the majority of people recognize and appreciate the sanctuary conditions prevailing in the park. In consequence the wild life is becoming very tame. During the summer and fall months as many as two or three dozen partridges might be counted while making a trip up the auto road. Deer are also met with and during the winter have been observed wandering on the south slope of the park. There were also plenty of caribou tracks to be seen and it is believed that these animals are quite plentiful in the park though they roam chiefly on the highest parts.

Winter Sports.—The Eighth Annual Tournament of the Revelstoke Ski Club was held on the Ski hill, Revelstoke park, on February 7 and 8, 1922, and, as in past years, attracted numerous competitors and visitors from outside points. The new shelter on the ski grounds was very much appreciated both by the Ski Club and the citizens of the district at large, and it proved a great convenience to all.

APPENDIX No. 4

REPORT OF THE SUPERINTENDENT OF JASPER PARK, COL. S. M. ROGERS, JASPER, ALTA.

A standard trail was built between Sunwapta cabin on the Sunwapta branch of the Athabaska river over the Poboktan pass and down to Brazeau lake, thence following the Brazeau river to its junction with the Southesk river, a distance of 53½ miles. This opens up a most interesting scenic, fishing, and game area which in the past has been almost impossible of access, and adds to the park facilities in the way of fire and game protection.

The greater portion of the trail from Caledonia lake to Dorothy lake was completed and the remainder, about 4 miles, will be finished during 1922.

A standard trail was completed up Snake Indian river to Rock lake, approximately 35 miles, making accessible a very interesting area and much improving the fire-protective facilities.

Aerial Reconnaissance and Photography.—Through the co-operation of the Canadian Air Board the superintendent was enabled to take part as photographer in trial flights by aeroplane covering three days, under the pilotage of Major Croil, Air Superintendent at High River, Alberta. A number of photographs were secured, many of which are of areas hitherto inaccessible, and it was established that the district was favourable for flying operations, owing to the wide valleys and the absence of air pockets which often render mountain flying difficult and dangerous. It was also found that Jasper park offers exceptional facilities for water landing-places for hydro-aeroplanes, if such are used in the future operations in connection with fire protection and aerial photo-topography.

Forest and other fires.—Fire losses were very low, owing to an unusual amount of precipitation and extra care in safeguarding. There were 27 railway fires with a total damage of $53.75 and six general fires, causing a total damage of $50. The cost of fire-fighting was: railway fires, $473.59; general fires, $818.75; total, $1,292.34.

Roads.—General road maintenance work was successfully carried out by the resident engineer and much necessary data obtained for the future extension of work.

Visitors to Jasper Park.—During the past season approximately 7,000 people visited Jasper park.

His Excellency the Governor General and the Duchess of Devonshire paid a farewell visit to Jasper park accompanied by a large house party, the members of which were kind enough to express their interest in this park and the hope of returning in the near future for an extended stay.

Edmonton—Vancouver Motor Highway.—The pathfinding party organized in connection with the proposed highway made their reconnaissance trip from Edmonton, proceeding part way by motor car and then by train and railway speeder to Entrance where they crossed the Athabaska river to Parkgate on the abandoned right of way of the Grand Trunk Pacific Railway. From this point within the park they covered the abandoned right of way to Pocahontas on horseback, and railway speeders were furnished from there to Jasper. In the opinion of this large party, including provincial government engineers, it would be comparatively easy and economical to convert the abandoned rights of way into a good motor highway.

Game Animals in Jasper Park.—There is a continued and most satisfactory increase in game animals, though it is impossible to estimate numbers correctly, owing to the wide area their range covers and their continual movement to new feeding grounds. The herd of wapiti procured from Yellowstone National Park, United States, has increased most satisfactorily. It is considered that the original 85 on a conservative estimate, has increased to over 200. They are in splended condition and evidently find that this park affords good summer and winter feeding grounds.

Interprovincial Boundary Survey.—Two large parties working under Dominion and provincial authority carried out successfully the survey of the remainder of the line south of the Canadian National railway covering the Fortress lake, Whirlpool river, and Tonquin valley areas, and also a small portion of the area north of the railway from Yellowhead. This not only completes a much-needed work but serves to open up new areas in the park.

New Buildings.—A number of suitable residences of the bungalow type were erected during the year, some of which are very artistic. Plans have also been filed for a number of new business buildings.

The steel bridge and approaches at the crossing of the Athabaska river were completed during the summer and afford a safe and convenient crossing.

Contagious Diseases Hospital.—A small hospital to care for contagious diseases has been provided and equipped. Should an emergency arise the hospital is now well fitted to deal with it. Accommodation for 10 patients is provided.

Agnes Laut Colony, Lake Edith.—Miss Agnes Laut, the well-known writer and publicist, and Miss Julia E. Follett, of New York, have erected four attractive log bungalows, the first of the proposed colony of authors, artists and university professors which Miss Laut hopes to establish in the park.

Telephone Construction.—Twenty-eight and a half miles of telephone lines were constructed during the year, adding greatly to the efficiency of the fire and game protection service. The longest line runs from the Athabaska Falls to Sunwapta cabin, a distance of 19½ miles.

Predatory Animals and Birds.—During the year the warden service has continued an active campaign against all forms of predatory life. In addition to numerous crows, hawks, pack-rats, etc., the following predatory animals and birds were destroyed, principally by trapping, during the past winter: 1 timber wolf, 21 coyotes, 3 wolverines, 5 weasels, 1 lynx, 1 eagle.

Forest Reproduction.—There is an unusually heavy new growth of both Douglas fir and spruce, gradually spreading over the valley of the Athabaska. This supersedes the lodgepole pine, and forms a much more valuable timber asset than the latter. This new growth is especially noted in and around Jasper where both Douglas fir and spruce are observed. From Bedson to Brule and Errington the major portion of the new growth is spruce; this also applies to the east bank of the Athabaska from Snaring Junction north to the park boundary.

APPENDIX No. 5

Report of the Superintendent of Waterton Lakes Park, G. E. Bevan, Waterton Park, Alta.

The outstanding feature of the season, 1921-22, was the marked increase in visitors. Approximately 20,000 persons visited the park, and their whole-hearted and enthusiastic appreciation will do much to advertise its attractions. Fully 70 per cent of these arrived by motor car, bringing their own camping equipment and supplies.

The remarks of widely travelled tourists in the visitors' register reveal the surprise and delight experienced by visitors. One publicist, who has visited every scenic attraction from Mexico to northern Canada, stated that Waterton Lakes was the "gem of them all." It is evident that this park is now coming into its own. With the increase of facilities for the accommodation of tourists and the extension of the road system it will become one of the most popular resorts in the whole of the West and an increasing source of benefit in money and health. It forms too, with Glacier park in Montana, an international playground which gives an additional interest and value.

As expected the opening of the new subdivision early this spring caused a revival of interest in building and many lots were applied for.

GAME PROTECTION

Moose.—Except for an occasional stray animal, no moose make this park their habitat. The few that sometimes make their appearance evidently wander in from British Columbia or Montana.

Deer.—There is no question regarding the increase of the mule or black-tailed deer, as daily evidenced by the entries in the warden's diaries, and by personal observation. On one occasion last spring 84 were counted in one herd in the immediate vicinity of headquarters. The number of yearlings in these herds is a matter of congratulation, as showing the decrease in wolves and coyotes, natural enemies of the deer.

Rocky Mountain Sheep.—The head of this animal, known commonly as the bighorn, is the most sought for trophy of the hunter. During the summer sheep seek the upper slopes, but with the coming of autumn they seek the valleys and may then be easily seen and estimated. The same flock ranged on Vimy mountain this year as last, and would appear to have increased in numbers.

Goat.—From the diaries of wardens, goat appear to be increasing in the park, though it is extremely difficult to make an estimate of their numbers, as they inhabit the upper slopes of the most rocky and precipitous mountains.

Beaver.—These are undoubtedly increasing, so much so that ranchers and homesteaders in districts near the park have been granted permits to trap them. These are no doubt the overflow of the natural increase in this sanctuary. Beavers never cease to excite interest among the visitors to this park and evening parties are often made to go and "watch the beaver."

Bear.—Bears are clearly on the increase though as a rule they are only seen in spring when they are leaving their winter quarters. In the summer they disappear to their solitary ranges and though a few cases of pilfering have been reported they have not become a nuisance.

Bird Life.—During the migratory season water-fowl are in evidence. Then, the lakes being on their direct route south, many flocks rest a day or so on their long flight, and swans, geese, and ducks are to be seen in tremendous flocks. Grouse, partridge, and kindred species appear to be increasing. The smaller feathered varieties are here in abundance and are a never ending source of interest to our campers and visitors.

Predatory Animals.—Cougars (mountain lions), wolves, and coyotes are the largest and most persistent enemies of game animals and continued efforts to reduce them are made by the wardens with good effect.

Fishing.—The satisfaction expressed by the tourists with regard to the park fishing attractions is gratifying. The largest lake trout caught this season weighed 37 pounds, while a dozen or more weighed between 20 and 30 pounds.

PROTECTION AND DEVELOPMENT

Fire Protection.—Only one forest fire of magnitude occurred here last season, notwithstanding the dry, hot summer. This was, however, a severe one. Isolated in one of the most inaccessible portions of the park, where trails had to be cut to allow the passage of men and equipment, it had attained considerable headway before it could be checked . Here again the portable fire-fighting units proved their value.

Telephones.—With the completion of the line between the Belly river ranger station and the new Lees cabin, about 60 miles of forest service line will be in operation. For the maintenance and improvement of this important service 500 poles have been cut and stacked during the past winter.

Trails.—A new trail to the summit of Vimy mountain was cleared and partly graded. Another was cut to Bertha lake and one to Cameron lake and the boundary was also partly completed.

Roads.—Two miles of the Oil City road were completed during the summer. The commencement of this road, which is destined to be the main trunk highway of the park, has caused much satisfaction to patrons of the park. The road will eventually cross the southeastern corner of British Columbia and will connect with roads leading to the Pacific coast and Banff-Windermere highway. When completed it will thus place Waterton Lakes park on the International park-to-park highway, and in addition it will open up a vast mountain hinterland of unexcelled scenic beauty.

Farming Operations.—The park farming operations produced sufficient crop to provide headquarters with grain for the winter months and forage for the year. It is hoped in the near future to harvest enough forage to supply not only headquarters but the wardens' stations as well.

Grazing.—Owing to the effect of the general financial depression on the stock industry there were fewer applications for grazing permits. Those issued aggregated only 1,763 in 1921, as against 1,912 in 1920.

Visitors.—The increasing popularity of Waterton Lakes park as a summer resort is evidenced by the large increase in the tourist traffic. The following comparative figures of the numbers visiting the park show this conclusively: 1918, 5,000; 1919, 9,000; 1920, 14,000; 1921, 20,000; total, 48,000.

Last season's entries in the park register show representatives from 32 States of the Union, from ten foreign countries and from each of the provinces of the Dominion. The completion of the main trunk highway through the park will tend to increase the number of visitors from the Pacific States.

The recreations at Waterton park during the season include fishing, boating, bathing, motor launch trips, hiking, horseback trips, golf, dancing, etc. The initial work done on the new golf course and the decision to complete the course during the coming season has been received with great enthusiasm by local patrons.

APPENDIX No. 6

REPORT OF THE SUPERINTENDENT OF BUFFALO PARK, A. G. SMITH, WAINWRIGHT, ALBERTA.

Farming Operations.—The land under crop consisted of 415 acres seeded to oats, 180 acres being summer-fallow, 100 acres fall ploughing and the remainder spring ploughing. Approximately 35 acres were cut for green feed and from the remainder 9,200 bushels of oats were threshed, this being sufficient for the park requirements for the coming year, including seed. About 3,000 bushels were shipped to other Dominion parks.

Haying.—A total of 850 tons of hay was secured this year, of which 800 tons were cut on the Ribstone meadow. All of the latter was this year's growth and well saved. The remainder, mostly upland hay, was cut in the cattalo enclosure, home paddock and at Rocky Ford. Permits covering 175 tons, in small lots, were granted to settlers living in the vicinity of the park.

Fire Protection.—With the exception of 21 miles of fireguard along the west side, which were ploughed by contract, all of the guards were ploughed by park outfits. There was one bad fire during the year. This fire entered the park from the outside at the southwest corner and burned over 1,000 acres of grazing land.

Fencing.—About 40 miles of the main fence on the north, east, and south boundaries were repaired, and 5 miles of new fences erected in Winter Quarters, in connection with the construction of receiving pastures and a "cutting-out" corral.

Telephone Line.—Nine miles of new telephone line were constructed connecting the warden's cabin on the west side of the park with the park telephone system.

Timber Permits.—Fifty-four dry wood permits, each permit being for 25 cords of wood, were issued to people living in the vicinity of the park for their own use. Permits were also issued to farmers covering 22,000 willow fence-pickets, a privilege greatly appreciated by the settlers in the district.

Wild Animals.—Nineteen yak were brought in from Banff last fall and are doing well. All the animals are looking well and are thriving. The natural increase in buffalo for the year has been 1,075, bringing the total number now in the herd up to 6,146.

The records show that there are at present the following animals in the park: buffalo, 6,146; moose, 24; elk, 187; mule deer (estimated), 466; antelope, 4; cattalo, 13; yak, 22; domestic cattle (cattalo experiment), 17; total, 6,879.

Breeding Experiments.—Very encouraging results are being obtained from the experiments in cross-breeding domestic cattle with buffalo and yak, which are being carried on by the Department of Agriculture in this park; although these experiments, as can be expected, must necessarily be very slow and it will be some years before definite results can be achieved.

Birds.—The protection afforded all bird life in a sanctuary of this kind is certainly of great benefit, and it is interesting to note how the wild geese and ducks recognize that it exists. Sportsmen of the district also appreciate the protection given to game birds and realize that the good shooting to be had outside the park during the open season is chiefly due to the fact that all bird life is safe within the boundary of the park.

Coyotes.—During the year 65 coyotes were destroyed. A few of these were shot but the majority were killed by dogs, as this has been found to be the most effective method of dealing with these predatory animals.

Visitors.—Buffalo park, during the past season, was honoured with a visit from their Excellencies the Duke and Duchess of Devonshire and party. The animals were rounded up for the occasion and the vice-regal party had the novel opportunity of viewing such a great herd of buffalo living under natural conditions.

Motor traffic to the park was greater than during any previous season, in fact most of the 7,000 visitors to our park travelled in this manner.

APPENDIX No. 7

REPORT OF THE SUPERINTENDENT OF ELK ISLAND PARK, ARCHIBALD COXFORD, LAMONT, ALBERTA

In June and July the ploughing of the fireguard and widening it 16 feet on the east side of the park was carried out. Some of the sloughs were also corduroyed so as to connect the different sections of the fireguard throughout, which will make it much easier for ploughing and disking. No fires occurred in the park during the year.

As usual the main fence was thoroughly gone over and all weak places repaired. In order to protect the hay land in the forest reserve a new fence was also built around sections 10 and 11 and the north half of section 2. Haying was begun about the first of August. The crop was approximately 400 tons and this, with the 50 tons carried over from the previous year, was sufficient for the winter's feed.

The main road into the park and through the buffalo pasture was gone over and put into good condition. Later a trail was cut from the Sandy Beach fireguard to the east fence for convenience in case of fire.

Animals and Birds.—All the wild animals in the park are in splendid condition. There was a net increase of 37 buffalo. The total number of animals now in the park is as follows: buffalo, 270; moose, 70; elk, (estimated) 200; mule deer, (estimated) 150. It is believed that the coyotes do considerable damage to the small deer. There is so much brush here and they are so cunning it is difficult to make much headway against them, although by shooting, trapping, and baiting six were killed during the winter.

Wild birds of all kinds are very plentiful. Partridges, prairie chickens, and herons nest in the park and when the shooting season opens the wild ducks flock in hundreds into the park for the protection it affords and they remain until the lake freezes.

Visitors.—It proved a very busy season with visitors and campers, the total number coming through the gate being 5,443. Two parties took out permits to build cottages and it is hoped that before spring opens a survey will be made of a number of lots for building purposes.

APPENDIX No. 8

REPORT OF THE SUPERINTENDENT OF POINT PELEE PARK, F. H. CONOVER, LEAMINGTON, ONT.

The past season showed an increased number of visitors at Point Pelee park both from Canada and the United States. The fact that the park is only thirty-eight miles from Detroit, a city of one million people, together with its southerly situation and unusual attractions, no doubt accounts for the large number of motorists who come here from across the border. Each year finds it increasing in favour as a pleasure resort.

The new and handsome pavilion has been much commented upon. It is centrally located in the park facing lake Erie and in close proximity to an excellent bathing beach. Ample accommodation for bathers will soon be provided in the new bath-house which will be constructed this season.

The absence of mild easterly winds, which usually bring in a supply of sand and gravel, brought about a deficiency in road materials so that the surfacing of only half the road could be undertaken. Under favourable conditions the remainder can be completed early in the coming season.

Three supply wells for fire units were sunk at points that would be most accessible in the event of fire. Covers for these are now being made as well as benches and tables for the park and pavilion.

The wild life of the marshes is showing the benefits of increased protection and is rapidly increasing in numbers. The quail (Bob White) have passed the winter safely and are now evidently becoming established for they are fairly plentiful within the park, as are also the ringneck pheasants. Muskrats, too, are abundant.

The migratory songsters, including robins by the hundreds and bluebirds in limited numbers, appeared about February 20 joining a large colony of jays that wintered within the park.

APPENDIX No. 9

REPORT OF THE HONORARY SUPERINTENDENT OF FORT ANNE PARK
L. M. FORTIER, ANNAPOLIS ROYAL, N.S.

Fort Anne, redolent of history and romance and a beauty spot as well, is attracting a larger number of visitors each year. Fully eight thousand persons visited the fort in the year just closed, of whom 4,775 registered.

There have been many additions to the museum and we have now four rooms and two corridors in the old "Officers' Quarters" filled with objects of interest, and the task of showing and explaining them to visitors is no light one.

The most noteworthy event of the past year was the historical celebration on the 31st of August, when tablets were unveiled in the fort commemorating (1) the 300th anniversary of the Charter of Nova Scotia, (2) the 200th anniversary of the sitting (in this fort) of the first court administering English Common Law in what is now the Dominion of Canada, and (3) the 100th anniversary of Haliburton's arrival in Annapolis Royal. These three splendid memorials are now placed, one outside and the other two inside the Administration building in Fort Anne. A volume is about to be published by the Historical Association of Annapolis Royal giving an account of the ceremonies connected with the erection of the tablets and verbatim reports of the speeches made and papers read on that occasion.

APPENDIX No. 10

REPORT OF THE ST. LAWRENCE ISLAND PARKS

The island reservations in the St. Lawrence river attract each year an increasing stream of visitors. On some of the larger islands near Brockville and Morrisburg picnickers sometimes number as many as a thousand a day, and each island has its quota of permanent campers throughout the season. It is estimated that approximately 30,000 people make use of the parks during the summer, which is good evidence of their public value.

The new Broder park, which is one of the largest and finest of the islands, has become a very popular resort and there is never a day throughout the season when its bathing beach and recreation grounds are not occupied by happy picnickers. A comfortable pavilion was erected last year. In the other parks the work consisted of the usual repairs to wharves, painting, and clearing.

PART III

FORESTRY

REPORT OF THE DIRECTOR OF FORESTRY, R. H. CAMPBELL

This report covers the work of the Forestry Branch for the fiscal year 1921-22, ended March 31, 1922.

Although the prevailing commercial depression throughout Canada, in common with the rest of the world, was reflected in many of the lines of activity of the Forestry Branch, the total effect was not so great as might have been anticipated, and some features of the work show a gratifying expansion, which indicates that the trend is now toward normal conditions. It is, perhaps, notable that while several kinds of forest products taken from the forest reserves show decreases there were increases in fuel-wood, building logs, and railway ties. There was an increase of about $2,500 in the revenue received, the total for the fiscal year being $146,266. Losses from forest fires were lighter than in the preceding year, chiefly owing to climatic conditions, but owing also, in part, to increased efficiency on the part of the fire-fighting organization and to additional equipment and improvements. Increased interest was manifest in tree-planting on prairie farms; and the work of forest research, both as regards forest reserves and utilization of forest products, shows steady progress.

FIRE PREVENTION AND SUPPRESSION

Viewing the area covered by the Forestry Branch as a whole, the season of 1921 was a favourable one from the standpoint of forest protection. The fire-hazard was very light in Manitoba and Saskatchewan and much greater in Alberta and British Columbia. In the two former provinces, as there was plenty of precipitation at the right time, only a few fires started, and these were easily controlled. In Alberta there were two periods of unusual fire-danger. In the southern part of the province there was plenty of rain in the spring and there were few fires, but in the autumn there was a period of dry, hot weather when fires were numerous. In the northern districts the weather was dry in early spring, resulting in many fires. The result was a total of over 842 fires, but only 35 of these developed to such an extent as to cover more than ten acres each. In British Columbia the season was one of abnormal fire-danger, but the danger area was restricted to the Salmon Arm fire ranging district and the reserves surrounding. In the Coast and Revelstoke districts there was good precipitation and few fires broke out. Though in the Salmon Arm district this was one of the worst fire seasons ever experienced, and though the total number of fires increased from 408 in 1920, to 455 in 1921, the proportion of large fires (that is, fires over ten acres in extent) was reduced as well as the total area burned and the total amount of timber damaged, as compared with the preceding year. The number of fires in the Railway Belt caused by railways increased from 90 to 214, due largely to the reversion to the use of coal as locomotive fuel in place of oil. At the same time, the acreage burned over by railway fires decreased. This was largely due to the improved patrol work on the part of the railways.

The year's record shows increased efficiency in the detection and suppression of fires. This was due not only to improved organization of the fire-ranging force but also to improved equipment, the use of portable gasolene fire-pumps, motor transport and gasolene speeders, the establishment of lookout stations, and also the use of aeroplanes. Increased efficiency also came about from changes in the Fire Prevention Acts of Manitoba and Alberta, which gave Dominion forest officers greater powers in dealing with matters which come under provincial jurisdiction. In some of the provinces many fires were caused by the burning of brush contrary to the law, and probably more persons were convicted for this offence than in any previous year. The necessity for such action is regretted but the authorities in all the provinces are becoming seized of the importance of enforcing the laws which protect this great natural resource. The total number of fires for the season was 1,434, as compared with 1,532 for the preceding season. Of these 1,211 fell into the class of small fires, that is fires burning less than ten acres each, and 223 were large fires, burning areas of ten acres and over. Thus 16 per cent were large fires, a reduction from the figures of the previous year, when 27 per cent of the fires fell into the large class. The total area burned over was 121,788 acres, of which 23,853 acres bore merchantable timber; 19,356 acres, young growth; while the remainder was open or grass land. These totals represent a reduction from the previous year when the figures were: total area burned over, 485,500 acres; merchantable timber, 110,000 acres; young growth, 152,600 acres.

FIRES WITHIN FOREST RESERVES

Cause	1921		1920		1919	
	No.	%	No.	%	No.	%
Unknown	32	11	43	20	79	36
Campers and travellers	28	9	28	13	30	14
Settlers	10	3	11	5	26	12
Railways	193	65	94	44	46	21
Lightning	9	3	27	12	9	4
Lumbering			2	1	12	5
Incendiary	23	8	2	1	6	3
Brush disposal other than by settlers	1	*	2	1	5	2
Other known causes	4	1	7	3	7	3
Total	300	100	216	100	220	100

*Less than 1 per cent.

FIRES OUTSIDE FOREST RESERVES

Cause	1921		1920		1919	
	No.	%	No.	%	No.	%
Unknown	174	15	200	15	262	24
Campers and travellers	108	10	187	14	122	11
Settlers	329	29	106	8	212	20
Railways	370	33	596	46	372	34
Lightning	38	3	138	11	48	4
Lumbering	12	1	24	2	15	1
Incendiary	20	2	16	1	16	1
Brush disposal other than by settlers	37	3	16	1	18	2
Other known causes	46	4	33	2	28	3
Total	1,134	100	1,316	100	1,093	100

TOTAL OF ALL FIRES ON DOMINION LANDS

Cause	1921		1920		1919	
	No.	%	No.	%	No.	%
Unknown	206	14	243	16	341	26
Campers and travellers	136	10	215	14	152	11
Settlers	339	24	117	8	238	18
Railways	563	39	690	45	418	32
Lightning	47	3	165	10	57	4
Lumbering	12	1	26	2	27	2
Incendiary	43	3	18	1	22	2
Brush disposal other than by settlers	38	3	18	1	23	2
Other known causes	50	3	40	3	35	3
Total	1,434	100	1,532	100	1,313	100

THE USE OF AEROPLANES IN FOREST PROTECTION

The season of 1921 was the second in which, by co-operation between the Air Board of Canada and the Forestry Branch, aeroplanes were used in the work of protecting the national forests in Manitoba, Alberta, and British Columbia. In each of these the work varied with the nature of the ground to be covered. In the forested area of Manitoba, where there are many lakes and rivers to form good landing-places, the most successful results were attained by the use of large planes capable of carrying eight or ten persons. When small fires were discovered, the airman and his helper landed and put them out. When the fire was a large one, the machine was flown to some trading-post or village and fire-fighters were carried quickly to the fire, along with the necessary tools and provisions. In Alberta, machines were used equipped with wireless telegraph apparatus. From the planes the news of the discovery of a fire was sent by wireless to the aeroplane headquarters whence it was telephoned to the ranger station nearest the fire. In this way fire-fighting crews were sent out within a few minutes after the discovery of a fire, with the result that very few fires attained large proportions. In British Columbia it was found possible to fly directly over the fires at low elevation and thus gain all necessary knowledge as to their size, direction, and the points from which they could be best controlled. Planes were particularly efficient on days when the smoke haze rendered it impossible to locate the fire exactly from the lookout stations.

In all the provinces in which the aeroplanes were used the moral effect of these patrols was most salutary. Campers, settlers burning bush, and holiday excursionists from the cities were all made more careful in handling fire by the passing of the aeroplane overhead. Cards printed with suitable messages were carried by the airmen and dropped over camps and picnic parties, etc., and in certain cases special trips were made to drop these messages over fairs and sports meetings.

IMPROVEMENTS

The successful conditions for combating the fire-danger in forest areas are: first, means of getting news of the fires quickly to headquarters, and second, avenues of communication by means of which men may be quickly transported to the fires in order to extinguish them. This means the construction of a number of permanent improvements on the reserves, and the more complete these are the better will be the fire protection afforded. Improvements on Dominion forest reserves are planned for a long time ahead. In the slack seasons when there are no fires, the protective forces are employed in erecting telephone lines, lookout stations, and in constructing

roads, trails, bridges, etc. In years when the number of fires is large, little work can be done on improvements, but when the number of fires is small the number of miles of telephone lines, roads, etc., is correspondingly increased. Except in British Columbia, where in one district there was a very heavy season of fire-fighting, the season on the whole was favourable, so that there was a good showing in regard to improvement work. The construction of improvements was rendered easier by the fact that the cost of materials was lower and that labour was easier to obtain. In all, the sum of $55,811 was expended on improvements and this, as explained above, was supplemented by the labour of rangers when not fighting fires. In addition to improvements on the reserves the rangers employed in the fire ranging districts outside of reserves also improved the trails, portages, camp-sites, etc. This not only facilitates their own movements but also gains the co-operation of those who travel in the northern woods, which makes for greater protection. In addition to the construction of improvements given in the table below, all existing improvements were maintained in good condition. Some work was uncompleted at the end of the year and is not included. The figures are:—

	Number		Miles
Cabins	18	Roads	49
Ranger station houses	6	Trails	239
Stables	14	Telephone lines	223
Lookout towers	10	Fireguards (cleared)	17
		Fireguards (ploughed)	260

SILVICULTURE

The comprehensive term "Silviculture" is used because it denotes better than any other the object kept in view in Forestry Branch timber operations on the reserves. That object is to provide the surrounding districts with as much building material and fuel as possible at the present time, while, at the same time, building up the reserve to its highest state of production for the future. Generally speaking, the object of silvicultural operations is to dispose of the old and inferior trees in order to give room for the young trees of the best kinds to grow as rapidly as possible. There are on some reserves considerable areas of timber killed by fire, insects, or disease. The aim is to dispose of this dead timber as quickly as possible, both to allow the new growth to come up, and to prevent the progress of those insects which multiply in dead timber and thus endanger the growing stand. Where the area of mature timber to be disposed of is considerable, this is done by means of competitive sales, the purchaser being required to cut all trees marked by the forest officer, and to ensure the safety of the forest by the proper disposal of the brush left after the cutting. Where the quantities to be disposed of are small, this is done by means of permits at reasonable rates, granted to the settlers in the districts surrounding the reserves. The settlers usually cut the trees themselves, and in the case of building timber, it is generally sawn in small portable saw-mills specially licensed for that purpose. This is one side of silviculture; the other is the planting and sowing the seeds of desirable species in blank areas on the reserves in order to bring on the new crop as quickly as possible.

Owing to the depression in trade and industry there was a decrease in the amount of most of the kinds of timber taken from the reserves, both under sales and permits. The exceptions were fuel-wood, building logs, and railway ties.

On all the reserves a total of 23 acres was planted with about 70,000 transplants and seedlings of white spruce, jack pine, lodgepole pine and Scotch pine. Seeding operations covered 28 acres, and included the same kinds of trees with the exception of lodgepole pine. For the most part these sowings and plantations did well; in one instance, only, was there a heavy loss, due to excessively hot weather following the

planting period. Nurseries have been started on several of the reserves in order to have a supply of planting material available locally, and additional supplies are also brought from Indian Head and Saskatoon nurseries.

An important part of the silvicultural work was the collection of tree-seed. This was mainly undertaken at the request of the British Forestry Commission, which pays the cost of the collection of the seed and its preparation for shipment. The large amount of seed handled rendered necessary the erection of a modern seed-extracting plant at New Westminster, B.C. This was efficiently operated during the seed-collecting season, and the following quantities of seed were collected: Sitka spruce, 8,125 pounds; Douglas fir, 4,500 pounds; western hemlock, 440 pounds; and smaller quantities of other species. A total of 7,500 pounds was shipped to the British Forestry Commission, and the surplus at the close of the fiscal year was being disposed of to the forestry authorities in Canada, on this continent, and in different parts of the world. The plant at New Westminster, while probably not the largest of the kind, is one of the most fully equipped and efficient.

GRAZING ON FOREST RESERVES

Though there was a slight decrease in the number of permits issued for grazing on forest reserves and in the total number of stock grazed, this does not indicate any decline in the appreciation by farmers and stockmen of this use of forest reserves. It reflects the general depression in the stock-raising industry, due to the low prices which have prevailed in the past two years. With the return of higher prices and general prosperity in the industry there is no doubt that the grazing facilities of the reserves will be used to an increasing extent. While in some of the provinces the rainfall was rather light towards the end of the season, the pasturage continued good and the stock left the reserves in good condition. In all the reserves where there are grazing areas, great care is taken to divide the privileges fairly and equitably among the farmers and stockmen of the district served by the reserve. This work has been greatly assisted by the plan of forming local stock associations which co-operate with the forest officers in the management of the herds on the reserves. Grazing surveys were continued and it is expected that all the pastures on the different reserves will be eventually covered in this way. The object of these surveys is to ascertain the extent and quality of the pasturage, to fix the maximum number of stock which may be grazed on each area without danger of injuring the grass by overgrazing, and to decide whether it is advisable to undertake any betterments looking to the improvement of the quantity and quality of the pasturage. In the Prairie Provinces the bulk of the grazing is still done on the southern reserves and there are large areas suitable for grazing in the northern districts which will undoubtedly be made use of to a much larger extent, as soon as conditions and means of transportation improve. The total number of live stock grazed was 88,392, a decrease of about 2,000 head from the preceding year. This number was made up of 58,938 cattle, 18,502 horses, and 10,952 sheep.

RECREATIONAL USES OF FOREST RESERVES

Legitimate use of the forest reserves for recreational purposes is not injurious to the reserves but rather is an advantage, but the hunter or camper must be careful not to injure the forest, and in particular should not permit any damage to result from his careless use of fire. The advantage is that this practice enables many citizens to see the forests, and thus leads them to appreciate their importance and to co-operate with the authorities in conservation work. The use by citizens of all the western provinces of the forest reserves for recreational purposes is steadily increasing. This was particularly so during the fiscal year in Manitoba and British

Columbia. A number of additional summer cottages were erected on the parts of the reserves designated for that purpose, and the number of visitors to resorts in the British Columbia reserves exceeded that in any previous year, and included, in addition to residents of the different provinces of Canada, visitors from the United Kingdom, the United States, South America, and Hawaii. In addition to the direct benefits brought by the visits there is the increasing spread of the knowledge of Canada's forest resources throughout the world.

TREE PLANTING ON PRAIRIE FARMS

Although in the fiscal year 1921-22 there was more interest shown in regard to tree planting, general conditions and unsettled markets made it impossible for many farmers who were anxious to do so to undertake any tree-planting work. Tree plantations, both as a means of preventing the bad effects of high winds on soil and crops, and also as improving the appearance and comfort of the farm home, are more highly valued than ever before, and when conditions become normal it is expected that tree planting on the prairie will receive a great impetus. At conventions and similar gatherings the value of tree planting in the West has been repeatedly and warmly commended.

From the standpoint of tree-growth, the season was a favourable one. No serious damage occurred from winter-killing in the winter of 1920-21. Not only did the different kinds of broad-leaved trees of which the belts are mainly composed come through the winter in splendid shape, but the same remark applies to the conifers (evergreens) sent out. In addition to this the reports indicate that fruit trees such as plums, standard apples, crabapples, etc., planted under the protection of the shelter-belts also wintered exceedingly well. In the Indian Head Forest Nursery Station heavy crops of plums and of eight varieties of standard apples were harvested, and the inspectors reported many instances where individual farmers had had good success with fruit trees. The Dominion forest nursery stations do not send out any fruit or ornamental trees, but farmers find that once they have a shelter belt they can grow fruit trees that would not otherwise thrive.

All classes of stock made good growth on nurseries, but it was not a good year for the collection of tree-seed. However, sufficient was secured for the requirements of the nurseries and there was some for distribution. The permanent plantations made very good growth, appreciably more than in the season of 1920. There was considerable distribution of coniferous seedlings for planting on such of the forest reserves as have no local nurseries. The weather during the shipping season was favourable, and the distribution of the planting stock was expeditiously accomplished. The number of seedlings and cuttings distributed increased by over 750,000 as compared with the preceding year, and the number of new applications for stock was over 400 more than in 1921.

FOREST PRODUCTS LABORATORIES

The fiscal year 1921-22 was a very successful one. The number of requests for information increased greatly over any previous year. The experimental paper-mill was in operation longer, the research and investigative work was greater than in any year since the opening of the war, and there were more than 200 visitors more than in any previous year.

A large number of investigations were under way, only a few of the major ones of which can be mentioned. These include the chemical composition of Canadian pulpwoods, the pulping qualities of fire-killed wood, water storage of pulp, use of hemp waste in papermaking, maximum strength of kraft paper. In the division of

Timber Physics among the investigations undertaken were the decay of timber in buildings, bending of woods, kiln-drying, and wood identifications. Over 12,000 tests were made in the progress of the study of the properties of Canadian woods. The investigation of Nova Scotia mine-timber was completed, and other investigations in progress related to the strength of aeroplane timbers, the strength of joists, nail-holding characteristics of woods, and tests of fibre-board. The chief study under Wood-Preservation was that in regard to the preservative treatment of railway-ties, which subject is receiving a great amount of attention. Other investigations were the adaptability of maple and aspen ties to preservative treatment, tests of proprietary preservatives, treatment of telephone pole brackets, and the study of fire-retardant treatment for wood. Good progress was made in all these investigations and all the other lines of work at the laboratories were carried on more actively than ever before. It is evident that the people of Canada, who have to do with forest products, are turning more and more to the laboratories for information connected with their work.

FOREST RESEARCH WORK

There are two general lines of forest investigative work which present themselves to forest authorities in Canada: first, investigation of forest resources, and second, investigation of methods of handling forest areas to secure the highest continuous production that is economically possible.

During the fiscal year 1921-22 the work on the first of these problems has been to a certain extent that of combining two lines previously carried on, namely, that of the Commission of Conservation and of the Forestry Branch. The Forestry Branch has completed a large number of surveys of forest resources of Dominion forest reserves and the work of getting this data for all the reserves is now in progress. It has also made preliminary surveys of large areas lying north of the settled parts of the Prairie Provinces. The Commission of Conservation had published completed reports on the forest resources of Nova Scotia and British Columbia and had commenced a survey of the forests of Ontario, which is being completed by the Forestry Branch.

In co-operation with the Air Board of Canada a beginning was made in 1921-22 in the investigation of the use of aeroplanes in extensive reconnaissance of forest resources, by mapping from the air and by air photography. This work was only begun in the fiscal year and is to be continued. Sufficient information was gained, however, to show the possibilities and to indicate the lines on which the best results are likely to be obtained.

The second problem, namely, that of the investigation of methods of handling forest areas to secure the highest continuous production possible, covers a very wide field and involves the study of methods of perpetuating forests of merchantable species, of replacing non-merchantable species by more valuable ones, of finding uses for trees at present unmerchantable, and study of the silvical and economic aspects of methods of natural and artificial reproduction. This last problem involves measurement and study of the yield we may expect from the different species. Work on yield requires a simple and accurate method of measuring standing timber and the development of some such method for commercial purposes, to take the place of the present system of preparing local tables for each species and locality, will be of very great value.

This widespread investigative work is directed from Ottawa and carried on at a number of points in Canada. There are, first, the forest experiment stations at Petawawa, Ont., in the Ottawa valley, and at Lake Edward, Que., in the St. Maurice valley, the latter in co-operation with the Laurentide Company and the Entomological Branch of the Department of Agriculture.

Experimental cuttings are being carried on in different parts of Canada, notably in co-operation with the Bathurst Lumber Company, of Bathurst, New Brunswick. Forest investigative work has been completed, or is being carried on, in different parts of the east, in co-operation with the provincial forest services and with the following private concerns:—

Ontario.—Spanish River Pulp and Paper Company, Algoma district; Abitibi Pulp and Paper Company, Abitibi district; Graves, Bigwood and Company, Sudbury district; McLachlin Brothers, Hawkesbury Lumber Company, and Gillies Brothers in Nipissing district; the Shroeder Mills and Timber Company, Parry Sound district.

Quebec.—Laurentide Company in the St. Maurice valley, and Riordon Company in the Rouge valley.

New Brunswick.—Bathurst Lumber Company, Gloucester county, and the J. B. Snowball Company, Northumberland county.

Arrangements have been made for the coming season to co-operate with the following concerns:—

Ontario.—J. B. Smith and Sons, Nipissing district; Eastern Lands Canadian National Railways, Pompre Lumber Company, and Hayward Lumber Company, Algoma district; Shevlin-Clarke Company, Fort Frances; Dryden Pulp and Paper Company, Dryden.

Quebec.—Price Brothers, Limited, Chicoutimi; Howard Smith Pulp and Paper Company, Gaspe.

New Brunswick.—Pejepscot Pulp and Paper Company, Kingston, Northumberland county.

The whole-hearted co-operation of the provincial forest services and of the various companies is appreciated.

The same lines of investigation are carried on by the staff on the Dominion forest reserves in Manitoba, Saskatchewan, Alberta, and British Columbia, and by the Dominion Forest Nursery Station at Indian Head, Sask.

A proportion of the work involves repeated measurements over a period of years, so that none of the main problems has yet been completed. Some of the individual studies have been finished for certain species, conditions and localities, but the general application of the conclusions drawn from these studies must be verified by further investigations in other species and localities.

The work on methods of estimating timber for commercial purposes is furthest toward completion. A number of volume tables have been prepared and are available to those requiring them.

Extensive work has been done on the conditions of growth that follow cutting operations and practical conclusions have been reached, for some localities, as to the proper method to adopt for handling pulpwood species. Promising experiments have been made in increasing the proportion of softwood in the mixed hardwood-softwood forest. Experiments in natural and artificial reproduction are under way and have met with a due measure of success. Measurements and study of yield of the important Canadian species in the natural and thinned forest are in progress, this work being carried on simultaneously with the work on methods of estimating.

Brush disposal is an established and successful practice on the Dominion forest reserves in the West and valuable information has been secured in regard to the practical possibility of applying silvicultural methods to timber sales.

The work of developing uses for species at present unmerchantable is carried on by the Forest Products Laboratories, the report of which division forms part of this report.

PUBLICATIONS AND PUBLICITY

The publication and publicity work showed considerable expansion during the fiscal year. In addition to the annual report the chief documents in pamphlet or report form were: the ninth printing of Bulletin No. 1, "Tree-planting on the Prairies," which brings this to a total of 70,000 copies issued; Bulletin No. 71, "Canadian Sitka Spruce—Its Mechanical and Physical Properties," which is another in the series dealing with Canadian commercial woods; and Circular No. 13, "The Cascara Tree in British Columbia." A good deal of material in smaller form was issued and material for newspapers was prepared and distributed in greater quantity than ever before. Fire-warning posters and cards bearing concise notices for distributing to incoming tourists and for dropping from aeroplanes were increased in numbers and attractiveness. Warnings against careless use of fire in the forests were again placed on the cancelling stamps of a number of western post offices, through the co-operation of the Post Office Department.

THE LIBRARY

As the research work of the branch increases, the demand upon the library's resources correspondingly increases, and the tendency is for the library to assume a position of increasing importance in the work of the service. By securing loans from other offices—not only in Ottawa, but also in Toronto, Washington, New Haven, and other centres both in Canada and the United States—the work of the research staff has been facilitated and extended. The project, initiated last year, of preparing and circulating lists of references on certain selected subjects has been continued. Up to the present the lists have dealt with the tables of growth, volume, etc., in the library at this office; of these, seven have been sent out during the year. They have been sent, not only to officers of the branch, but also to a selected list of others to whom the lists are of interest and use, a number of whom have expressed their appreciation.

During the year there were added to the library some 500 books and pamphlets, and a total of 111 periodicals were regularly received—41 by subscription and 70 through exchange. Some 950 photographs have been added to the collection, making the total number of pictures now about 13,250.

STATISTICS

The collection of statistics relating to the annual production of sawn lumber, lath and shingles, pulpwood, wood-pulp, and paper in co-operation with the Dominion Bureau of Statistics was carried on as in previous years. Bulletins for the calendar year 1919 were issued for publication together with press letters and preliminary reports covering the calendar year 1920. The schedules containing the reports on which these publications were based were revised in the Forestry Branch, and the final reports were checked and edited before publication. Investigations of the wood-using industries of Canada were resumed.

STAFF

The total permanent staff of the Forestry Branch for the last year was as follows:—

Head office	54
District inspectors	5
Assistant district inspectors	2
Forest supervisors	19
Foresters and forestry assistants	23
Forest rangers	93
Chief fire rangers	11
Promoters of tree planting	8
Forest Products Laboratories, technical staff	16
Outside clerical staff	50
	241

APPROPRIATIONS

The appropriation for the fiscal year was $1,000,000 plus refunds from fire-guarding, etc., $23,579.99. Total available for expenditure $1,023,579.99. The expenditure was divided as follows:—

Salaries at head office	$ 18,754 90
Travelling expenses	2,497 37
Printing and stationery	18,978 27
Miscellaneous expenses	13,674 16
Statistics	4,067 50
Fire-ranging	258,630 95
Forest reserves	492,794 75
Surveys and research	45,189 44
Tree planting	71,548 35
Forest Products Laboratories	86,199 88
Total	$1,012,335 57

The field expenditures in the western provinces, exclusive of tree planting on prairie farms, were divided as follows:—

Manitoba	$ 128,302 07
Saskatchewan	203,828 86
Alberta	250,137 53
British Columbia (Railway Belt)	185,186 91
	$ 767,455 37

TABLE I—STATEMENT OF REVENUE, FORESTRY BRANCH, FISCAL YEAR ENDED MARCH 31, 1922

Reserve	Timber sales	Timber fees and dues	Timber seizures	Grazing permit and trespass dues	Hay permits and seizures	Surface rentals	Special uses	Nursery stock	Unclassified	Total
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Turtle Mountain		104 14	10 00	3,652 65	553 00	71 60	32 00			4,513 39
Spruce Woods		84 75		1,186 55	147 75					1,419 05
Riding Mountain		5,451 43	512 34	967 50	931 10	213 20	529 00			8,604 57
Duck Mountain		2,289 74	187 80	489 25	442 50	277 80	17 00			3,704 09
Moose Mountain		398 20	12 00	1,001 45	132 75	103 00	608 42			2,255 82
Beaver Hills		108 00	15 00	425 96	373 50	22 00				944 46
Porcupine	2,206 31	695 59	292 30	424 05	532 75		78 00			4,229 00
Pasquia	12,758 06	2,911 66		21 27	304 00		56 00			16,050 99
Fort à la Corne	247 34	624 50	12 00	2 65	12 00					898 49
Pines	50 00	1,605 25	58 91	658 02	72 75		31 00			2,475 93
Nisbet	160 50	3,740 97	171 10	203 86	86 25		58 00			4,420 68
Big River		227 02		205 78	405 50		30 00			868 30
Steep Creek		23 75								23 75
Sturgeon		379 05		282 14	108 50		5 45			775 14
Keppel		236 25		833 70			10 00			1,079 95
Manito		286 20		2,120 89	48 50		32 00			2,487 59
Dundurn		10 25		674 15	80 00		10 00			774 40
Seward				734 07	63 75		26 00			823 82
Elbow		33 60		852 70	726 00		100 00			1,712 30
Big Stick				6,369 76			61 00			6,430 76
Cypress Hills		1,557 11	53 90	5,292 12		30 05	11 00		138 45	7,082 63
Cooking Lake		27 00		998 79	235 25					1,261 04
Crowsnest	1,814 85	2,316 81	650 55	8,411 35	24 50	28 20	255 13		30 00	13,561 39
Bow River		2,918 43		6,596 21	31 00		69 15			9,614 79
Clearwater	16,063 98	253 20		179 86	31 75	23 00	221 60			16 773 39
Brazeau	8,244 66	1,934 50		45 30		560 14	340 00			11,124 60
Athabaska	1,633 00	17 32		58 31	11 25		81 00			1,800 88
Lesser Slave	10,991 66			23 78	88 79		21 00			11,125 23
British Columbia Reserves	6,667 55	133 45		12 25	77 75	337 90	198 32			7,427 22
Indian Head Nursery							3 00	1,528 50	471 15	2,002 65
Total	60,867 91	28,458 17	1,975 90	42,724 37	5,520 89	1,666 89	2,884 07	1,528 50	639 60	146,266 30

TABLE 2—STATEMENT OF TIMBER PERMITS ISSUED IN FOREST RESERVES, FISCAL YEAR ENDED MARCH 31, 1922

Reserve	No. of permits		Kinds and Quantities of Timber Authorized to be Cut								Dues and fees
	Free	Paid	Poles or rails	Fence-posts	Saw-timber	Railway cross-ties	Mine timber	Building logs	Fuel green	Fuel dry	
					Ft.B.M.		Lin. Ft.	Lin. Ft.	Cords	Cords	$ cts.
Turtle Mountain	109	22	.....	600	7,366	.....	.....	7,670	.....	2,791	194 14
Spruce Woods	64	10	80	400	.....	.....	.....	1,000	.....	1,035	84 75
Riding Mountain	196	565	1,716	22,228	1,424,868	.....	.....	15,436	544	5,847	5,451 43
Duck Mountain	192	157	3,345	14,130	606,336	.....	.....	17,461	4	4,773	2,289 74
Moose Mountain	.....	119	.....	6,175	.....	.....	.....	2,960	7	752	398 20
Beaver Hills	66	4	.....	600	.....	.....	.....	5,400	.....	653	108 00
Porcupine	25	31	600	5,104	189,196	.....	.....	23,350	.....	123	695 59
Pasquia	22	93	400	43,034	756,772	.....	.....	8,594	20	7,464	2,911 66
Fort à la Corne	67	87	850	8,185	117,823	.....	.....	10,324	25	1,803	624 50
Pines	60	109	3,150	3,093	21,350	3,000	.....	9,200	.....	5,320	1,605 25
Nisbet	175	220	2,225	6,450	15,668	3,036	.....	19,060	100	13,843	3,740 97
Big River	19	14	2,900	6,050	.....	.....	.....	13,240	.....	649	227 02
Steep Creek	2	3	.....	400	2,500	.....	.....	.....	.....	35	23 75
Sturgeon	1	7	.....	600	20,000	6,648	.....	2,080	.....	25	379 05
Keppel	36	44	.....	360	.....	.....	.....	250	56	302	236 25
Manito	36	86	7,800	5,750	.....	.....	.....	1,000	205	472	286 20
Dundurn	5	2	.....	.....	.....	.....	.....	.....	16	40	10 25
Elbow	21	4	.....	.....	1,000	.....	.....	80	.....	208	33 60
Cypress Hills	125	417	20,445	52,575	74,930	.....	2,000	48,178	1,022	2,500	1,557 11
Cooking Lake	23	2	.....	250	.....	.....	.....	.....	.....	476	27 00
Crowsnest	201	109	10,995	8,155	558,682	.....	30,000	137,447	10	1,036	2,316 81
Bow River	32	54	10,107	9,380	15,160	.....	1,050	288,468	.....	797	2,918 43
Clearwater	58	14	.....	.....	.....	.....	.....	12,670	.....	1,837	253 20
Brazeau	18	14	.....	.....	30,000	.....	285,864	194,666	.....	505	1,934 50
Athabaska	3	1	.....	.....	.....	.....	.....	2,664	.....	50	17 32
British Columbia Reserves	6	18	2,400	200	33,000	.....	27,375	4,458	21	63	133 45
Total	1,562	2,206	66,413	193,719	3,874,651	12,684	346,289	825,656	2,030	53,399	28,458 17

TABLE 3—STATEMENT OF GRAZING PERMITS ISSUED IN FOREST RESERVES, FISCAL YEAR ENDED MARCH 31, 1922

Reserve	No. of permits	Number of Stock				Dues and fees collected
		Cattle	Horses	Sheep	Total	
						$ cts.
Turtle Mountain	137	1,596	226	.....	1,822	3,644 40
Spruce Woods	56	1,257	171	.....	1,428	1,186 55
Riding Mountain	97	1,623	78	40	1,741	879 50
Duck Mountain	26	1,261	23	.....	1,284	489 25
Moose Mountain	94	2,071	281	.....	2,352	1,001 45
Beaver Hills	37	899	57	.....	956	425 96
Porcupine	41	994	77	.....	1,071	414 05
Pasquia	6	52	8	.....	60	21 27
Fort à la Corne	1	5	2	.....	7	2 65
Pines	32	1,457	118	.....	1,575	658 02
Nisbet	21	470	15	.....	485	203 86
Big River	6	497	32	40	569	205 78
Sturgeon	14	569	42	.....	611	282 14
Keppel	45	1,293	418	700	2,411	833 70
Manito	87	3,264	783	19	4,066	2,100 69
Dundurn	30	1,468	317	.....	1,785	674 15
Seward	18	387	319	.....	706	734 07
Elbow	85	1,290	562	550	2,402	852 70
Big Stick	103	8,625	2,797	6,650	18,072	6,342 76
Cypress Hills	97	6,119	3,881	.....	10,000	5,227 32
Cooking Lake	69	1,979	74	.....	2,053	998 79
Crowsnest	143	12,295	3,739	2,953	18,987	8,411 35
Bow River	179	9,367	4,143	.....	13,510	6,566 61
Clearwater	43	37	214	.....	251	179 86
Brazeau	3		49	.....	49	45 30
Athabaska	8	6	55	.....	61	58 31
Lesser Slave	2	14	15	.....	29	23 78
British Columbia Reserves	6	43	6	.....	49	12 25
Total	1,486	58,938	18,502	10,952	88,392	42,476 52

TABLE 4—STATEMENT OF TIMBER CUT ON FOREST RESERVES UNDER AUTHORITY OF TIMBER SALES, FISCAL YEAR ENDED MARCH 31, 1922

Reserve	Previous sales still operating	Sales made current year	Saw-timber	Mine Timber		Telephone poles	Railway cross-ties	Poles	Dues collected
				Props	Lagging				
			Ft. B.M.	Lin. ft.	Cords	No.	No.	Lin. ft.	$ cts.
Porcupine	5	.....	1,031,057	158,188	100,357	.....	.....	.....	2,206 31
Pasquia	7	3	4,209,174	.....	.....	.....	.....	.....	12,758 06
Fort a la Corne	2	.....	291,077	.....	.....	.....	.....	.....	247 34
Pines	.....	1	.....	.....	.....	.....	.....	.....	50 00
Nisbet	1	.....	.....	.....	591	.....	.....	.....	160 50
Crowsnest	1	.....	38,705	.....	.....	.....	.....	.....	1,844 85
Clearwater	2	2	.....	85,887	105,090	.....	.....	.....	16,063 98
Brazeau	4	1	1,218,173	666,858	706,208	.....	571,405	.....	8,244 66
Athabaska	1	.....	405,834	.....	.....	.....	.....	.....	1,633 00
Lesser Slave	3	.....	2,279,846	.....	.....	.....	.....	.....	10,991 66
British Columbia Reserves	8	1	301,074	.....	.....	9,950	.....	73,315	6,667 55
Total	34	8	9,774,940	910,933	912,246	9,950	571,405	73,315	60,867 91

TABLE 5—STATEMENT SHOWING QUANTITY OF TIMBER SOLD AND REVENUE DUE, FISCAL YEAR ENDED MARCH 31, 1922, ON LICENSED TIMBER BERTHS WITHIN DOMINION FOREST RESERVES.

MANITOBA

Reserve	Timber berths	Area in reserve	Quantity sold			Revenue		
			Lumber	Lath	Other* products	Dues payable	Rent payable	Total payable
	No.	Sq. Mls.	Ft.B.M.	No.		$ cts.	$ cts.	$ cts.
Riding Mountain..	4	42·43	398,651	.....	3,867	223 98	222 15	446 13
Duck Mountain...	11	99·76	163,846	.....	.....	122 85	499 90	622 75
Total...	15	142·19	562,497	.....	.....	346 83	722 05	1,068 88

SASKATCHEWAN

Porcupine and Pasquia.....	40	868·37	42,000,091	8,904,321	1,535,430	29,388 51	3,994 05	33,382 56
Big River.....	2	253·75	13,192,069	5,835,600	.....	14,742 04	1,286 75	16,028 79
Nisbet and Pines.	4	80·69	.....	.....	10,073	2,238 05	173 15	2,411 20
Total.....	46	1,202·81	60,282,160	14,739,921	.....	4,636,860	5,453 95	51,822 55

ALBERTA

Crowsnest	11	254·94	5,666,163	1,836,650	1,457,981	7,539 88	1,374 70	8,914 58
Bow River.....	14	327·90	2,345,561	.....	1,943	1,246 51	1,825 60	3,072 11
Clearwater.....	4	371·52	.....	.....	191,596	7,633 84	1,887 30	9,521 14
Brazeau.....	11	163·85	692,756	.....	176,191	7,387 13	1,131 30	8,518 43
Total.	40	1,118·21	8,704,480	1,836,650	.....	23,807 36	6,218 90	30,026 26

BRITISH COLUMBIA

Total..	11	133·57	1,041,965	.....	.....	940 26	667 85	1,608 11

GRAND TOTAL

Grand Total*.....	112	2,596·78	70,591,102	16,576,571	.....	71,463 05	13,062 75	84,525 80

*The figures in this column indicate the number of units in which the dues were calculated. They include 11,417 fence-posts, 2,661 cords of fuel-wood, 325 cords of pulpwood, 73,347 lineal feet of piling, 1,825,978 railway cross-ties, 5,926 rails, and 1,457,442 lineal feet of mine props.

APPENDIX No. 1

REPORT OF THE CHIEF OF THE TREE PLANTING DIVISION, NORMAN M. ROSS

Conditions affecting tree-growth and the setting of new plantations during the growing season of 1921 were on the whole very favourable. The inspectors all report a very much larger proportion of newly planted stock as having taken root and made satisfactory growth. In southwestern Manitoba and southeastern Saskatchewan there was a restricted area which experienced extreme heat and a period of drought late in July, which caused many young plants, which had started to grow earlier in the season, to dry out and die in late summer.

Although there is more general interest than ever before being shown in regard to tree planting, general conditions affecting agriculture in the West—principally labour and unsettled markets—make it impossible at present for a very large proportion of farmers, who are otherwise anxious to do so, to undertake any tree-planting work. These conditions will gradually become more normal and from all indications we may then expect that tree planting generally will be given an enormous impetus.

Practically no serious damage occurred from winter-killing in any section during the winter of 1920-21. At the Indian Head Nursery Station the fruit trees came through in splendid condition and in addition to quite heavy crops of plums some eight different varieties of standard apples matured fruit of good size and quality. Inspectors also report many instances where individual farmers were having excellent results with plums and crabapples, where grown under protection of shelter-belts.

The inspectors in all districts report on the very favourable results with the evergreens sent out from the nursery station. When once established these make very satisfactory growth and are certainly the ideal trees for permanent prairie planting.

NURSERY WORK

All classes of stock made good growth in the nurseries. Our caragana plots suffered from a severe wind storm just as the seed was germinating, and as a consequence about 50 per cent of the crop was lost. The evergreens, both new transplants and freshly sown seed-beds, came along well.

Distribution.—Shipping of broad-leaved stock commenced April 23 and was completed May 5. Evergreens were shipped May 10 and distribution completed May 12.

DISTRIBUTION OF BROAD-LEAVED STOCK IN 1921

Number of applicants receiving trees	3,603
Seedlings and cuttings distributed	4,083,975
Average number per applicant	1,092
Number of applicants on inspection list, 1921	7,561
Number of new applications for 1922, approximately	2,226

At the Indian Head and Saskatoon Nursery Stations the following broad-leaved material is available for distribution this spring (1922): Manitoba maple, 3,554,500; green ash, 347,000; Russian poplar, 1,176,000; red willow, 1,292,500; acuteleaf willow, 831,500; laurel willow, 308,775; caragana, 839,000; total, 8,349,275.

CONIFERS

Applicants numbering 240 were supplied with conifer (evergreen) transplants, at a nominal charge as follows: white spruce, 18,750; jack pine, 5,000; Scotch pine, 22,750; total, 46,500. In addition to these 57,000 pine and spruce seedlings and transplants were shipped for planting on the Manitoba and Saskatchewan forest reserves, making a total of 103,500.

Collection of Seed.—Owing to various causes this was a very poor season for the collection of maple seed. In most districts seed failed to set and later in the season, owing probably to a few weeks of excessively hot weather, what seed did set in certain localities did not fill. We were able to secure only 166 pounds of maple seed and 658 pounds of ash seed. About 450 pounds of caragana seed were collected at the Indian Head Nursery Station, and 150 pounds at the Saskatoon Station.

Of the coniferous species 267 bushels of jack pine cones yielding 104 pounds of clean seed were collected in the forest reserves in northern Saskatchewan and in the Riding Mountain reserve. The cones were shipped to Indian Head and the seed extracted and cleaned at the nursery station. Forty-four bushels of lodgepole pine cones were collected in the foot-hills of the Rocky mountains. These yielded only 7½ pounds of clean seed, the dry season probably having affected the filling of the seeds. It was not a seed year for white spruce in any part of the West. We were able to secure six bushels from a few trees at the Indian Head Nursery, from which 5 pounds of clean seed were extracted.

Distribution of Seed.—Fifty pounds of maple, 25 pounds of ash, and 100 pounds of caragana seed were sent out in March, 1922, to 105 applicants. For experimental work and nursery beds 10 pounds of spruce seed and 100 pounds of jack pine were sent to different forest reserves.

Permanent Plantations.—All the permanent plantations made very good growth, on the average considerably more than in the season of 1920. Measurements of growth were taken as usual in all the older plantations, which entailed measuring several thousand individual trees.

Injurious Insects.—The larch saw-fly appeared again in considerable numbers in some of the tamarack and larch plantations, but the trees were immediately sprayed with arsenate of lead and no very serious injury resulted. General reports from different districts show that the canker-worm and aphis on the maples were very prevalent especially in southern Manitoba. There were also several reports of the blister beetle affecting caragana, more especially in Alberta and western Saskatchewan.

PLANTING IN RESERVES

In *Spruce Woods* reserve 43,000 jack pine seedlings were set out covering fifteen acres of new planting: twenty-six acres were sown broadcast with 96 pounds of jack pine seed and half an acre with two pounds of spruce seed. Reports of the plantings on this reserve were very disappointing this season. Following three years of very scant rainfall the summer of 1921 appeared much more favourable, but in this particular district there were about two weeks of intense heat during July, which on the light, sandy soil practically burned up everything. Only a very small percentage of the newly planted stock survived and even the older plantings suffered very considerably. The areas which had been seeded showed some germination in the early summer but the young seedlings were apparently scorched up during the hot spell.

In *Cooking Lake* reserve about five acres of new plantation were set out in the spring of 1921, using stock raised on the local nursery, also a few small, experimental areas were seeded. At the end of October, 87 per cent of the stock planted was living.

In *Cypress Hills* reserve a total of about one and three-quarter acres of experimental planting was done, using small stock grown in the local reserve nursery.

VIDAL'S POINT

Forty-two permits were issued for camping privileges on the public park at Vidal's Point in the Qu'Appelle valley. This is the only available public property bordering on the Qu'Appelle lakes which can be used for general recreation and every season attracts an increasing number of holiday seekers. There is a limited area available for camping purposes and another portion with an excellent bathing beach and fairly well treed, for general picnicking purposes. The increasing use of this property by the general public necessitates certain improvements for sanitary purposes, also the erection of bathing houses, wharves, etc. The Forestry Branch having no appropriation for such purposes, this property was in October, 1921, established by Order in Council as a Dominion park, to be known as Vidal's Point park, and has been placed under the administration of the Dominion Parks Branch.

APPENDIX No. 2

Report of the District Forest Inspector for Manitoba, H. I. Stevenson

The work of the Forestry Branch in Manitoba is the administration of the Dominion forest reserves, the fire protection of all timbered lands lying outside the forest reserves and the fire-guarding of the Hudson Bay railway, which is at present considered as being under construction.

The timbered lands outside the forest reserves are divided into three fire-ranging districts: (1) The Pas, comprising the northwestern part of the province; (2) Manitoba North, comprising the northeastern portion; and (3) Manitoba South, comprising the territory in the neighbourhood of lakes Winnipeg and Winnipegosis and the eastern portion of the province from the International Boundary to Berens river.

FIRE PROTECTION

Fire protection in the forest reserves is carried out by means of mounted forest rangers, lookout men stationed in observation towers, and voluntary fire guardians in the surrounding settlements. On the forest reserves of Manitoba there is a very complete system of roads, trails, and telephone lines which enables forest officers to locate fires quickly and to reach them with fire-fighting crews and apparatus before they have burned over any great area.

Outside the forest reserves, patrolling is done almost entirely by canoes. The men work in pairs and travel through the different systems of waterways. These waterways provide the only means of travel in the northern part of the province, and patrols are laid out along the different rivers and lakes. Some of these patrols are from one hundred and fifty to two hundred miles long.

The season of 1921 was remarkably free from fires. During the early spring conditions were bad on the more open parts of the forest reserves. The ground dried out before the vegetation became green, and high winds prevailed. The result was that we had several large grass fires which destroyed some young poplar reproduction of little value, but no trees of valuable species or merchantable timber were destroyed. In all, fifteen large fires (those burning over 10 acres) occurred in and adjacent to the forest reserves, but, as previously mentioned, these fires were confined to grass lands and young poplar. Fires in the neighbourhood of forest reserves are, in the majority of cases, caused by the carelessness of settlers in clearing land and burning hay sloughs but greater care is being shown by the settlers each year.

Outside forest reserves eighteen fires were reported, four of which were located and extinguished by the use of seaplanes. These fires were also confined to grass lands, muskegs, and to scrub jack pine growing on rocky ridges. No valuable commercial timber was destroyed. These fires all occurred early in the spring and in practically all cases were caused by winter camp-fires. It is the habit of trappers in the northern districts to camp in the bottom of dense spruce muskegs during the cold weather, so that they may be sheltered as much as possible from the wind. These camp-fires burn down into the moss and peat, and in the early summer break to the surface and spread. During the past winter the endeavour has been made to warn trappers and travellers in the north of the danger resulting from these winter camp-fires, and it is hoped thus to lessen the number of fires from this cause. During the latter part of the season rainfall was abnormal and no fires were reported during August, September, and October. In addition to the above-mentioned large fires, fifty-three small fires were reported, these were suppressed without having done any damage.

During the spring of 1921 several amendments were made to the Manitoba Fires Prevention Act by the Provincial Legislature. One amendment gives police authority to Dominion forest officers and the right to question any man as to the route travelled by him, thus enabling them to keep a better check on persons travelling through the district, particularly in the northern areas. The second amendment makes it an indictable offence to leave a camp-fire burning, whether or not damage was caused by the fire spreading. The third amendment gives authority to take settlers any distance to a fire north of the fifty-third parallel. The fire laws of this province are excellent. Forestry Branch officers receive every assistance from the provincial authorities and Dominion forest and fire rangers are appointed special fire guardians to administer the Manitoba Fires Prevention Act. During the past season numerous prosecutions were necessary and fifteen convictions were obtained against settlers for burning brush without permits and refusing to assist in extinguishing fires.

Two gasolene-car patrols were maintained on the Hudson Bay railway, as it was necessary to follow each train over the road. A great many small fires were put out during the season by these patrols and the dangerous portion of the roadbed cleared when occasion arose.

AEROPLANE PATROL

During the summer of 1921 the Canada Air Board established a seaplane station at Victoria Beach to be used under the direction of the Forest Service. Three machines were stationed there (two F3's and one HS2L) and patrols carried out from the Winnipeg river to Norway House, observing the territory between lake Winnipeg and the Ontario boundary and territory adjacent to Norway House, Cedar lake, lake Winnipegosis, the Waterhen, the northern part of lake Manitoba and lake St. Martin. In all, about eighteen million acres of timbered lands were constantly under observation by seaplane patrols. A number of fires were located by the planes.

Crews, tools, and provisions were transported, and the fires suppressed. In addition to actual work done the seaplanes had a big moral effect on the people within the territory covered, and in all phases of the work fully demonstrated their value.

IMPROVEMENTS

Improvement work on the forest reserves was largely confined to the repairing of roads, trails, bridges, and telephone lines; also the general maintenance of buildings. Owing to the excessive rainfall during the latter part of the season, the ranger personnel was kept busy repairing washed-out bridges and culverts. During the summer 190 miles of fireguard were ploughed or disked, and approximately 25 miles of telephone line rebuilt on the Duck Mountain forest reserve. The telephone lines on all reserves were gone over and repaired, and approximately 250 miles of road were widened and repaired. The telephone lines in this district are now in good condition.

A 60-foot steel tower was moved from the old Roblin ranger district to a point near the Dauphin ranger station on the Riding Mountain forest reserve, erected in a good position and connected with the Central telephone line. On the Duck Mountain reserve a new steel tower was erected in the Pine River district on the Garland-Singoosh road. This tower commands a view of practically the whole eastern boundary of the Duck Mountain forest reserve and also the territory east of lake Winnipegosis.

Two new cabins for fire rangers were built, at small cost, on the Hudson Bay railway, one at Mile 42 and the other at Mile 185. There was a distinct decrease in the cost of labour and material this year, with the result that practically all improvement work was done at less cost than during the preceding year.

SILVICULTURE

There was a noticeable falling off in the number of permits issued during last season, not more than one-third the usual number of permits being issued. This was due to the extreme financial depression in the country, which practically stopped all building in the rural districts. While this fact results in a very great decrease of revenue it is in some respects an advantage, as the amount of merchantable timber on forest reserves is limited, and heretofore in order to supply the demands of the settlers we have perhaps been cutting more timber on the reserve than is consistent with good silvicultural practice. Another distinct advantage in this connection is the fact that it permits the giving of more careful supervision to the cutting being done.

During the summer a number of new sample plots were laid out, principally in jack pine; and thinnings made of stands of various ages to different degrees of density. Nine new plots were seeded or planted and blanks filled in the existing plantations. Owing to the very dry period at the commencement of the season a great many trees died in the plantations, in some cases from 30 to 40 per cent being killed by drought. A thorough study of reproduction on the Riding Mountain forest reserve was made by Mr. W. N. Millar, assisted by officers of the district, and a number of studies proposed which will be worked out this year.

A large area of jack pine on the Riding Mountain reserve, in the neighbourhood of the Swanson cabin, was surveyed and estimated for future sale.

SURVEY AND ESTIMATE

A survey and estimate was made of a part of the territory east of lake Winnipeg and north of the Winnipeg river, two parties being employed. These parties were assisted in their work by seaplanes and the work checked by aerial photographs. A

preliminary aerial reconnaissance by the officer in charge of the party enabled him to lay out the work to much better advantage than he could otherwise have done. This work will be continued next season.

GRAZING

Grazing is permitted on all forest reserves in the province and several different methods of handling stock are provided. On the southern reserves there are two large grazing enclosures where the Branch accepts the stock and pastures them, providing watering-places, salt, etc. There is a herder in charge, whose duty it is to look after the stock and enclosure. From three to four thousand head are grazed annually in these enclosures. In addition to this, open or fenced grazing is permitted on all reserves. In some cases stock associations are formed by the farmers in a district, who employ their own herder, build fences, etc., and, under direction, manage the range allotted to them. In other cases individuals take out permits for open grazing, or provide their own fences. It is expected that grazing on forest reserves will greatly increase after the present depression, as the methods of handling this part of forestry work have given excellent satisfaction. Stock grazed last season left the reserves in fine condition.

USE OF FOREST RESERVES FOR RECREATIONAL PURPOSES

There has been a decided increase in the demand for lots in the summer resorts in forest reserves in this district. A new resort, known as Benito Beach, was surveyed on the north side of Madge lake. Forty-seven lots were laid out and about one-third of these are already taken up. There is also a big demand for lots at Clark Beach resort on Clearwater lake, in the Riding Mountain forest reserve. All the lots originally surveyed have been taken up and applications have been received from a number of persons, which will necessitate laying out additional lots at once. There are now five summer resorts on forest reserves in this district and requests have been received for new resorts to be opened up on other parts of the reserves.

The whole of the Riding Mountain reserve has been closed to hunters by the province, which is responsible for the protection of game, as, owing to the accessibility of this reserve, big game, particularly, were being killed off. It is hoped this will save from extermination the large herd of elk on this reserve. Assistance was given by Forestry Branch officers to the provincial game department in protecting the game on this and other reserves.

APPENDIX No. 3

Report of the District Forest Inspector for Saskatchewan, C. MacFayden

The work of the Dominion Forestry Branch in the province of Saskatchewan falls under two heads: first, that arising out of the administration of the forest lands established as Dominion forest reserves; second, that in connection with the protection from fire of all timbered lands prior to their being logged and brought under cultivation, or established as further reserves. The fire-protection work also includes that arising from the protection of forested lands traversed by railway lines, a special organization, co-operating with the officers of the Board of Railway Commissioners, being maintained for this purpose.

During the year under review, no major changes have been made in the status or area of the fifteen reserves within the province, although as may be expected, the work of administration increases steadily as the reserves are gradually brought under more efficient and intensive management. Compared with the preceding two years, there were very few applications received to have lands withdrawn from the reserves for agricultural purposes, although there was a number of isolated sections, or parts of sections, recommended for withdrawal, when, upon a thorough examination, they were deemed to be of agricultural value. With the exception of a few cases that are yet pending, one of which involves a considerable area, it is believed that the established reserves are free of any but a negligible area of agricultural lands. On the other hand, the area of lands outside of forest reserves, on which the Forestry Branch maintained a fire-protective force was reduced to a considerable extent, in the belief that forest protection should not be extended to lands that must ultimately come under the plough, except insofar as fires in such districts endanger neighbouring forest lands, or carry a valuable stand of timber. It is not the policy to continue the protection of poplar lands removed from railway facilities, and which, when cleared, will fall to the agriculturist, but rather, to protect only those lands that should be kept permanently under a forest cover. For this reason, the tendency is for the fire-protection work to be each year crowded farther and farther north, until the northern line of future agricultural settlement is reached. Any lessening of the fire-protection work in this way is, however, offset by the necessity of increasing the protection given to the areas of strictly forest lands in the north, and those bordering the line of settlement.

FIRE PREVENTION AND SUPPRESSION

The year was an unusually favourable one in the number of fires occurring, and the expenditures made in their suppression. There occurred, in the forest reserves and the lands protected outside of these, nine large fires or fires covering ten acres or more, and forty-six small fires or fires of less than ten acres, requiring an expenditure of only $20.66 for labour outside of the ranger staff in extinguishing them. These fires were almost evenly divided between the forest reserves and the fire-ranging districts. It is particularly gratifying to note that less than one fire in six gained anything like large proportions, indicating efficiency on the part of the rangers charged with the detection and suppression of fire.

IMPROVEMENTS

Because of the very favourable fire season, it was possible to devote considerable time and funds to the construction of improvements required on the forest reserves and in the fire-ranging districts. During the year, the accommodation for the reserve staffs was increased by the construction of two standard frame ranger houses. One of these on the Sturgeon forest reserve, replaces an old log building no longer of any value, and the other is the commencement of a station to serve as the headquarters of the eastern half of the Porcupine forest reserve, and situated close to Birch river in Manitoba. Six log cabins were put up by the forest rangers on the northern reserves. These are so situated as to serve as bases from which to work on fire-fighting, or on trail, telephone, or fireguard improvements, and also as storehouses for fire-fighting equipment and emergency fire-fighting rations.

Two 80-foot steel towers were erected, one on the Fort à la Corne forest reserve and the other on the Nisbet forest reserve. The tower system on the latter and the Pines forest reserve is now complete, with seven towers all visible from a water-tower in the city of Prince Albert, which latter, with the co-operation of the city, is used as the central station. An Osborne Fire Finder, purchased for use on the latter tower,

arrived too late in the season to be mounted and used, but is in readiness for next year. A number of temporary towers were erected of framed timbers during the summer, at suitable points throughout the reserves and fire-ranging districts; not so much as a part of a regular lookout system, as an aid to the rangers when on other work, and removed from telephone communication with the regular system.

Approximately forty-two miles of new roads were built during the year. This is exclusive of repair work done on existing roads or trails that were followed for part of the distance in each case. Eight and one half miles of road were added to the Caribou road crossing the Big River forest reserve from east to west, leaving approximately fifteen miles to be completed next year. Twenty-two miles were completed on the Fir River trail, connecting the headquarters of the Pasquia forest reserve with the Carrot River administrative station. On the Porcupine forest reserve, about ten miles of new road were constructed in improving an old trail from the Piwei cabin to the Swan River cabin. In addition to the foregoing work on new roads, a large amount of labour was expended in maintaining or improving all existing roads and trails, a large part of this being put on corduroying and the construction of culverts and small bridges.

During the year, the telephone systems on the northern reserves were added to by fifty-four miles of new line. The headquarters of the Big River forest reserve were connected with the Bodmin lookout tower, the wire being strung for a distance of five miles on the Canadian National Railways telegraph poles. On the same reserve, the Caribou telephone line was pushed forward eleven miles to within thirteen miles of Gutches cabin, the proposed western terminus. Twenty-seven miles of new line were constructed on the Porcupine forest reserve, in connecting the system with the Swan River ranger station. The new headquarters of the Fort à la Corne forest reserve were connected with the reserve system by the construction of ten miles of new line. The same headquarters were given connection with the Glenmary Rural Telephone Company's system, so that the reserve can now be reached over the long distance lines from the inspector's office, a need that has been much felt in the past. All existing lines were kept or put into good repair, and at the end of the year a carload of wire was purchased for the coming year's work.

A rather ambitious programme of improvement work was laid down for the fire-ranging staff, especially in the northern districts removed from settlement, where it is believed that any improvements which facilitate travel will win for us the greater co-operation and sympathy of the resident and travelling population. As an instance of such improvements, it may be mentioned that on the Montreal river two canals were dug by the fire-ranging staff, shortening the river by about five miles. Such a work is not likely to go unnoticed or unappreciated by a traveller, especially should he be heavily loaded and travelling upstream. A special effort was made to clear, straighten, and widen all portages, so as to lighten the arduous work of carrying over from one waterway to another. In the belief that our northern watercourses are extremely bewildering to a traveller not perfectly familiar with them, due to the numerous lakes, bays, and channels, a start was made to mark the most frequented routes so plainly that they could be followed by even a novice. Signs of characteristic shape, and discernible at long distances, are being erected at all portages, outlets, and inlets of lakes and at suitable points along the route. On the rivers and lakes in low-lying country, where good camp sites are infrequent, suitable places for this purpose are being marked, and where necessary, cleared of brush and overhanging trees or bushes, so as to allow of ready access from the water. Inexpensive log cabins are being erected at strategic points, for the storage of fire-fighting equipment and supplies, and as more comfortable quarters for the ranging staff during stormy weather. The work of erecting lookout towers of framed timbers at suitable points was proceeded with as in former years, and each canoe route has now several of these scattered along it. These enable the ranger to get a clear view of a much greater part of his territory than he can see while travelling.

GRAZING

Owing to the abnormal conditions of the last two years existing in the stock industry, the number of permits issued and the number of stock grazed on the reserves during the past year show a decided decrease over last year. Unfortunate as the decrease in these numbers may be, it is very evident that it is not due to any opposition to the grazing regulations in force on the reserves, as there is a rapidly growing appreciation of these among stockmen using the reserve for grazing purposes. The decrease is fairly uniformly distributed over practically all of the reserves, and the percental decrease is probably no more than has taken place in the number of stock in the province as a whole. Approximately 770 permits were issued, authorizing the grazing of, in round figures, 35,500 head of stock as against 885 permits issued last year for about 43,000 head. The decrease applies to all classes, including horses, cattle, and sheep. For these reasons there was no increase in the use made of the large northern reserves, such as was expected. The great bulk of the stock continues to be ranged on the smaller reserves situated within the prairie settlements, but as pointed out in previous reports, there are much larger areas of grazing lands within the northern reserves, and with the return to normal conditions in the industry, it is natural to expect that these lands will be utilized and the tide gradually turn in favour of the northern reserves as far as numbers are concerned.

Two new co-operative associations were formed during the year, one on the Elbow forest reserve and one on the Nisbet forest reserve. This plan of grazing the stock of a district on a co-operative basis continues to grow in favour, and it is interesting to note has been recently followed in several districts in the province where stock is being run on lands outside of the forest reserves.

Range conditions during the year were most favourable, good forage being abundant in practically every district. Owing to the understocked condition of many of the ranges, there is at the end of the year a plentiful supply of well-cured forage to care for the early grazing next year. Year-long grazing was, so far as possible, discontinued this year, with a view to increasing the summer capacity of the range and encouraging the growing of winter feed.

SILVICULTURE

Owing to the financial depression existing throughout the year, especially in the farming districts, the material cut from forest reserves under authority of permits, shows a small decrease in most classes, as compared with the previous year, although with this one exception, it is greater than any year previous, and this use of the reserves may be said to be steadily growing. The number of permits issued totalled 1,425, one-third of these being free of dues. A remarkable increase is noted in the number of railway ties taken out under permit, over 48,000 of these cut as against a record last year of slightly over 11,000. A considerable increase was also made in the fuel-wood taken, which amounted to over 35,000 cords, over two-thirds of which total was for sale. There is every indication that an increasing quantity of this product of the reserves will, each year, be cut, as the prairie population, more and more, take this means of securing their summer fuel. It is interesting to note that of the total amount of cordwood cut almost one half was taken from the Nisbet forest reserve, in the immediate vicinity of Prince Albert. This is due to the market for fuel in this city itself, and the comparatively short freight haul to Saskatoon which takes any surplus. Another reason was the plentiful supply of labour in this city during the past winter.

The increase in the material taken each year under permits is welcomed, in view of the fact that the large bulk of the material allowed to be taken under permits

is fire-killed, and in this way the reserves are being cleared of what constitutes a fire menace to the remaining green timber. Brush disposal in conformance with the regulations has also been most successful in these operations, and in the case of cordwood at least, it has been possible to have all material, regardless of its size and condition, utilized.

The timber sale business remained about stationary, except that fewer new sales were made than last year. The quantity of timber removed from the fourteen sales operating was approximately 5,250,000 feet board measure, as against a little over four million feet last year. Three new sales were made, involving altogether about 8,750,000 feet board measure. Brush disposal and other cutting regulations are being satisfactorily complied with and are increasingly easy to enforce.

Investigations and Planting.—Very little tree-planting stock was available for use on the forest reserves, and planting was limited to the Nisbet forest reserve, where 1,500 Scotch pine and 1,500 jack pine were set out in experimental plots. Owing to the rains before and following this planting, the stock did remarkably well, and at the end of the year hardly a single failure was noted.

In preparation for more extensive plantings, small nurseries were started on the Dundurn and Pines forest reserves, but the seed not being put in as early as it should have been, the results were not quite satisfactory, but were such as to encourage the extension of this work another year. From experience gained in experimental plantings, there does not seem to be any reason why this should not now be done on a larger scale with even better results, especially when the stock is grown on the reserves.

During the latter part of the year, studies were made of the form and taper in jack pine, spruce, and tamarack, to assist in the preparation of yield tables.

SURVEYS

A reconnaissance survey was made by a party of three, of the Bear lake and Mossy river country lying east of Montreal lake and west of Beaver and Cumberland lakes. The purpose of the survey was to correct and add to our existing maps, and to gain some idea of the types and amount of timber in that district. The information gathered shows only a comparatively small quantity of timber merchantable on to-day's standards.

During the year a start was made on a detailed survey of the types and amounts of timber standing on the different forest reserves. At the same time, all topographic features are being plotted. This work is being carried on by the reserve staffs. A survey was started towards the end of the year to define the area of a recently discovered infestation by bark beetles.

EQUIPMENT

In addition to keeping up the supply of ordinary tools, some special equipment was purchased. This included a motor-truck and two motor-cars, which were very useful in administrative and protective work; two detachable motors for use on row-boats used by river patrolmen; and two railway power speeders for running on railway lines through reserves.

APPENDIX No. 4

REPORT OF THE DISTRICT FOREST INSPECTOR FOR ALBERTA, C. H. MORSE

In the Alberta inspection district the Forestry Branch is responsible for the administration and protection of the Dominion forest reserves and the protection of timber on other public lands. We have, therefore, two rather distinct organizations, one concerned with the forest reserves or national forests and one concerned with the districts where fire protection is our only duty. The latter branch of the work includes co-operation with the Board of Railway Commissioners for the protection of timber along railway lines. There are three fire-ranging districts under the supervision of this office and these cover the wooded areas of the province not included in the forest reserves. They also include the important timber-lands of the territories to the north of the province of Alberta.

The forest reserves which cover an area of approximately 18,690 square miles have been definitely reserved for the production of timber and for their beneficial effect on stream-flow. It is the duty of the Forestry Branch, therefore, to protect the forests growing on them and to improve and extend the stands of timber by proper silvicultural practice. Unfortunately during past years repeated fires have reduced the mature timber to a very small percentage of the entire stand, but the remarkable regenerative faculty of our native tree species has provided fine young crops of timber, which will be extremely valuable in the not far distant future. Mature timber is sold, but only under conditions which make for safety from fire and which will ensure the permanence of the stand. The forest reserves and parks now comprise about 10 per cent of the area of this province. Recent surveys in the north have shown that there are other large areas of non-agricultural land capable of growing excellent timber which should be added to the existing forest reserves, thus increasing their area up to about one-third of that of the entire province. If these forests are properly administered and protected there is no doubt that the province will be assured of adequate timber supplies.

FIRE PROTECTION

The summer of 1921 was one of unusual fire-danger, although the fire damage was not greater than that which usually occurs in a normal season. Spring fires did not occur to any great extent in the south country as the season there was rather moist, but in the north the situation was decidedly different. In the Edmonton fire-ranging district 76 fires were reported during April and 121 during May. No serious fires occurred on the forest reserves during the spring or early summer months. The late summer period was unusually dry and when the grass was killed by frosts at the beginning of September the fire-danger became very acute. This peak was passed safely, except for one bad fire in the Crowsnest forest. In the north the September storms were lighter than usual and they were followed by a period of extraordinarily dry weather which made October the most dangerous month of the year. It was not until November 7 that general snow-storms disposed of the fire-danger for the year. October contributed 30 per cent, and May 22 per cent of all the fires.

The increase in the number of fires caused by settlers burning brush is remarkable. In the districts outside the forest reserves settlers caused 45 per cent of the fires and railways 26 per cent. Within the forest reserves railways were responsible

for 80 per cent of the fires. It is only fair to state, however, that most of these were very small ones which were extinguished by railway patrolmen within a few minutes after they had started. There was an unusual amount of brush-burning by settlers for clearing land in the fall of 1921. North of the Red Deer river the smoke was so dense during all the autumn that it was very difficult to detect new fires. Many settlers had crops and buildings burned by their own or their neighbours' fires, and even towns were in danger at times. In Edmonton the city fire department had to make repeated trips to the outskirts of the city to extinguish fires spreading from the brush country. It was found necessary in order to secure the observance of the law to institute a number of prosecutions for neglect of proper precautions. Eighteen persons were convicted and one offender received a jail sentence. It is hoped that these prosecutions will have a salutary effect.

Of the 842 fires reported by forest officers in this district, 215 occurred on the forest reserves and burned over a trifle less than one-fifth of one per cent of the forest reserve area. Most of the damage was done by two fires, one on the Crowsnest and one on the Brazeau forest. Fanned by extremely strong winds these fires spread out of control for one day, but after the organized crews reached them the fires made little or no further progress.

During the year the Legislature of the province of Alberta amended the Provincial Fire Act. As this is the Act under which Dominion forest rangers work, who are employed outside the forest reserves, this new legislation is of the greatest importance to this branch. The most important feature of it is that Dominion forest and fire rangers are specifically named as *ex officio* fire guardians under the terms of the Act. The Lieutenant Governor in Council is empowered to declare certain portions of the province to be areas of special forest fire risk and to make regulations concerning them. The powers of fire guardians are considerably increased and the penalties for infractions of the Act are made more severe.

AEROPLANE PATROL

Last year it was reported that an air patrol had been established over the Bow River and Crowsnest forests by the co-operation of the Air Board. This patrol was put into effect in September, 1920, but was rather too late to be an important factor in forest fire protection that year. The usefulness of aeroplanes for our work was nevertheless clearly demonstrated and plans were made for a continuation of the patrols during the season of 1921. A purely temporary aerodrome had been established at Morley, a village on the Canadian Pacific railway at the edge of the mountains, forty miles west of Calgary. It was found, however, that the winds at this point were too severe for safe landings and the soil was too gravelly to level without sacrificing all hope of establishing a new sod on it. After considerable study of the sites available the Air Board established a new aerodrome at High River. At this point four hangars have been put up to house aeroplanes, and several permanent buildings have been constructed. They consist of an administration building comprising offices, store-room and garage, a wireless building, and a workshop large enough to accommodate an aeroplane without dismantling. The wireless station is particularly powerful and has a steel mast, 190 feet high, for an umbrella aerial.

Two patrols were carried out almost daily during the summer, one going south over the forest reserves to the International Boundary, and one going north to the divide between the Red Deer and Clearwater rivers. Reports of fires were sent by wireless from the aeroplanes to the air station and from there by telephone to the rangers concerned. Forest officers also used the aeroplanes at various times to make a reconnaissance of a fire and determine the progress of fire-fighting operations. Leaflets warning the public concerning the danger of forest fires were dropped over towns during fairs and sports days.

IMPROVEMENTS

For the proper administration of a forest there must be provided telephone lines, roads, and trails; and, in order to have forest officers located at strategic points, it is necessary to have houses and cabins constructed. Trails, roads, and telephone lines are built by crews of labourers under the direction of the local ranger when he can be spared from his forest protection and administration duties. Cabins are built entirely by ranger labour during the winter months.

During the year considerable progress was made in completing the improvement programme for the forest reserves. On the Brazeau forest we constructed a house for the supervisor, a standard ranger station, and a small office building. On the same forest four miles of fireguard were built along a particularly dangerous stretch of railway. This fireline was constructed by clearing an extra sixty feet outside the right-of-way and plowing six furrows on the outer edge of this clearing. With such a fireguard the right of way and the extra clearing can be entirely burned over each spring without danger to adjoining stands of timber, and that particular section of the railway is then practically safe from fires. The importance of railway fireguard construction on the Brazeau forest is indicated by the fire schedule, which shows that out of 187 fires which occurred on the reserve during last season all but six were caused by railways. Next year it is hoped to construct fireguards along other dangerous parts of the 70 miles of railway under operation within the Brazeau forest.

On the Cypress Hills forest there were constructed 34 miles of telephone line to link up the supervisor's headquarters with the most remote ranger station. In building this line creosoted pine poles were used, for it has been found that untreated pine or spruce poles will not last more than about six years. The plan of applying preservative with a brush to the butts of seasoned poles has been tried, and while this treatment is fairly effective it has been found that the penetration of the preservative is not sufficiently uniform. In this case the butts of thoroughly seasoned pine poles were treated by the open-tank process. This consists of placing the poles in a tank of hot creosote oil until the wood is well heated and then transferring them immediately to a cold tank. By varying the length of time during which the poles are left in the tanks the degree of penetration can be controlled. It is expected that poles so treated will have a length of life about equal to that of cedar.

On the Bow River forest there were constructed fifteen miles of graded road leading to ranger stations from the forest reserve boundary. On the northern reserves no roads were built, but 176 miles of pack-trail were constructed. Most of this was built on the Lesser Slave forest where a great deal of such improvement work is necessary to open up the country. On the same forest one lookout tower was built. At various other locations on the forest reserves there were built during the year five log cabins, two barns, two railway-speeder houses, a machine shed, a pump-house, and a storehouse. A great deal of maintenance work was also done to keep roads, trails, telephone lines, and buildings in repair.

SILVICULTURE

Timber Sales and Permits.—The amount of timber cut in this district under the authority of timber sales and permits shows considerable increase over previous years in spite of the depression which has been so general in the timber trade. Fourteen sales were in operation during the past year of which eight supplied saw-timber to local mills and six provided mine-props and lagging for Alberta coal mines. The year's cut under authority of timber sales alone totals about 8,500,000 feet board measure, 2,000,000 lineal feet of mine-props and 2,000,000 lineal feet of lagging.

A special effort has been made to utilize dead and fire-killed timber as much as possible, in order to conserve the supply of growing timber which is readily accessible

to railways or settlements. With this end in view considerable work was done in locating and mapping out areas of fire-killed timber accessible to mines and railways and special inducements were offered to timber operators to use this material. As a result, the cut of mine material mentioned above is more than half fire-killed timber. In addition to this, about 750,000 lineal feet of mine-props and 550,000 feet board measure of saw-timber, as well as large quantities of dry cordwood, fence-posts, poles, building timber—all fire-killed timber—have been disposed of under permit.

The mining and lumber companies throughout the province have, as a rule, given us their hearty co-operation in our attempt to conserve so far as possible the green timber in the vicinity of their operations. They have willingly used all fire-killed and diseased material before cutting green timber and have also closely utilized all timber sold them. In very few cases has there been any difficulty in enforcing regulations concerning close utilization and brush disposal. This is particularly the case where the operator is more or less permanently located in the district.

Seeding and Planting.—On the Cypress Hills and Cooking Lake forest reserves, both of which are located on the prairies in poorly timbered country, nurseries have been started which are now in a position to supply yearly about 150,000 spruce and pine seedlings for plantations. Last year 13,700 lodgepole pine and 7,200 spruce were planted on these two reserves. In the case of the Cooking Lake reserve good results were obtained from planting seedlings direct from the seed-bed, thus saving the trouble and expense of transplanting.

Considerable work has also been done along the line of direct seeding, both by broadcast sowing on partially prepared ground, and also by sowing on small spots of prepared ground, spaced at definite intervals. At present this work is only in the experimental stage but the results obtained so far are quite satisfactory.

Investigative Work.—Investigative work of many kinds has been carried on under the direction of the staff of technically trained foresters assigned to the district. Growth of timber under different conditions is being studied by means of measurements made annually on trees in sample plots which are so chosen that the different conditions encountered in the forests are represented. This work includes also studies of fungus and insect damage, loss from wind-throw, and other related subjects. Studies have been made to determine the relative germinating qualities of seeds from different sorts of trees on different conditions of seed-bed, and also to ascertain the rate at which reproduction can be expected to come in after cutting the original stand to various degrees of density.

GRAZING

The forest reserve regulations are designed to allow the fullest use of the grazing resources of the forest reserves, consistent with the purposes for which they were created—the production of timber and the protection of water-sheds. Great care is taken to see that the privileges of forest grazing are divided as equally as possible among those entitled to them, and attempts are made to have grazing permittees work together in associations for the improvement of their herds and the conservation of the range.

During the summer of 1921, permits were issued to 587 permittees covering 26,961 cattle, 9,088 horses, and 2,953 head of sheep. No increase was made over the previous year in the number of stock grazed, the reason being that beef prices have been so low that ranchers have not yet brought their herds back to normal size. The winter of 1920-21 was rather mild and stock entered the forest reserves in the spring and early summer in very good condition. Although the rainfall during the summer was slight, the range did not suffer except in a few divisions where a pest of grasshoppers did rather serious damage. Stock left the reserves in good condition,

but as the market has steadily declined for the past two years the prices realized by the permittees have been very low.

Practically all our grazing permits are issued for the Crowsnest, Bow River, Cypress Hills, and Cooking Lake forests. There are considerable areas of excellent forage on the northern reserves but they are as yet too far from the settlements to be attractive to farmers and ranchers. Later, when the country is settled up to the boundary of these reserves, they will support thousands of head of cattle during the summer months and will be the safer from fire by having the forage consumed. Even in the Bow River and Crowsnest reserves there are quite large areas of higher mountain range still unutilized which would do excellently for sheep.

During the summer a grazing survey was made of the Castlemount district of the Crowsnest forest. This work was carried on by a party of three forestry students, working under the direction of the grazing inspector. The object of the survey was to determine the location and extent of the grazeable areas, the character of the forage, and the carrying capacity of the ranges under a system of intensive management. Sufficient data were secured to enable the supervisor to put into effect a plan of grazing management for that district. A collection of forage plants was made by the party and a number of specimens was added to the herbarium at this office.

APPENDIX No. 5

REPORT OF THE DISTRICT FOREST INSPECTOR FOR BRITISH COLUMBIA, D. ROY CAMERON

The British Columbia inspection district comprises the Dominion forest reserves in British Columbia, and the Coast, Salmon Arm and Revelstoke fire-ranging districts, all situated within the Railway Belt of British Columbia.

FIRE PROTECTION

For the third year in succession this district experienced a fire season of abnormal severity. Conditions paralleled 1920 in that the danger was confined within restricted limits, roughly within the boundaries of the Salmon Arm fire-ranging district and in the forest reserves. In the Coast district, abundant and well-distributed precipitation produced unusually favourable conditions and a very successful season resulted. To a somewhat less extent the same conditions were duplicated in the mountainous area comprising the Revelstoke fire-ranging district. In both these districts, however, a good deal of credit is due to the protective organization for prompt suppression of all outbreaks.

In the Dry Belt and adjacent Shuswap lake area, conditions repeated the 1920 phenomena. A cool spring and rainy June were followed by drought and resultant high temperature during July and August, producing a fire-hazard fully as severe as that experienced during 1920.

Lightning fires, although attaining a considerable percentage in the district totals, were very much reduced in number in the area of high fire-hazard. This feature gave rise to more favourable conditions for control of outbreaks. Also better equipment, particularly gasolene fire-pumps, and adequate motor transport, for the

first time available, enabled the field forces to cope with the situation arising far more successfully than was ever possible before. This combination of circumstances produced results as follows:—

Proportion of large to small fires, reduced from the 1919 and 1920 figures of over 50 per cent of the total, to 32 per cent;
Total area burned over, reduced from 64,336 acres in 1920 to 25,569 acres in 1921;
Loss of merchantable timber, reduced from 148,000,000 feet board measure in 1920 to 13,956,000 feet board measure in 1921;
Acreage young growth destroyed, reduced from 18,500 acres in 1920 to 8,866 acres in 1921.

These encouraging results were attained despite the fact that the total number of fires increased from 408 in 1919 and 422 in 1920 to 445 in 1921. A further index of the relative efficiency of fire control is shown in the figures for the percentage of fires whose cause was unknown. Of the 1921 fires 63 come under this heading, or 14·2 per cent of the total. But of these 63 fires 38 were fires reported along railway lines and confined to the right of way. The railways themselves are responsible for right of way fires, therefore, for purposes of comparison, these 38 fires should be eliminated from the general classification, "Unknown." This reduces the number of fires reported by our regular staff as "unknown" from 63 to 25, and the percentage from 14·2 to 5·6. This last figure constitutes a record in this district.

Of the causes of fires reported during 1921, railways head the list with 186 fires or 41·8 per cent. To these figures should be added, as indicated above, 38 unknown fires, confined to railway right of way, which will increase the percentage of railway fires to 50·3, or over half the total number occurring during the season. Lightning fires assumed second place with a total of 37 or 8·3 per cent as against 39·1 per cent in 1920. Campers came third with 36 fires or 8·1 per cent, closely followed by settlers' fires with 34, or 7·6 per cent. An unfortunate feature of the 1921 situation was the prevalence of incendiary fires, of which 29 or 6·5 per cent were reported. The remainder of the total number of fires was attributed to various causes of which smokers with 16 fires, or 3·6 per cent, contributed the largest number.

Fires Within Forest Reserves.—Forty-seven fires were reported within forest reserves during the season of 1921, 35 large and 12 small. The percentage attributed to the main causes were as follows: Incendiary, 28 per cent; campers and hunters, 28 per cent; unknown, 17 per cent; lightning, 12·8 per cent; and settlers, 6·4 per cent.

Even at the risk of repetition, which may be considered unnecessary, attention should again be called to the important part which lookout stations play in fire protection both within and outside the forest reserve areas in this district. The important function of fire detection has practically been taken over by these stations within the areas which they serve. This allows concentration of suppression forces at strategic points during periods of emergency, with resultant reduction of time in getting work started on the fire lines following outbreaks. Four forest reserve lookout stations were in operation during the season and two more, namely, one on Porcupine ridge in the Tranquille forest reserve and one on Cornwall hills in the Hat Creek forest reserve were partially completed by the close of the field season.

Fires Outside Forest Reserves.—As indicated above in this report the fire situation in the fire-ranging districts was fairly satisfactory during 1921. In the Coast district, losses were reduced practically to nil, only 8,000 feet of timber and twenty acres of young growth having been destroyed. In the Revelstoke district, losses were also negligible. Forest fires destroyed 150,000 feet of merchantable timber and ten acres of young growth. The Salmon Arm district did not fare so well. Within its

borders was concentrated again the high hazard and large percentage of fires occurring during the season. During the month of July alone 55 fires were fought under trying conditions of drought and high temperatures. August proved even worse, being hot and dry with considerable wind. The cumulative effect of continued drought produced particularly adverse conditions from a fire-control standpoint. The occurrence of 68 fires during this month tried the resources of the organization to the utmost. These fires accounted for by far the greater proportion of the total damage incurred during the fire season.

Railway Fire-ranging.—The outstanding feature of the railway fire-ranging situation during the season of 1921 was the reversion to the use of coal by the Canadian Pacific Railway in all oil-burning districts excepting between Field and Revelstoke. This necessitated special attention to fire protection. The first year's operations showed an increase in the total number of railway fires from 90 during 1920 to 214 during 1921. Despite this increase, the season's totals of acreage burned over and damage resulting show satisfactory decreases from 1920. In a large part the credit for this is due to the railway companies themselves, who improved very considerably their patrol work. Particular mention should be made of the section patrol organization installed by the Canadian Pacific Railway, which functioned in a very satisfactory manner.

Of the 214 railway fires, 117 were extinguished before they had attained a size of a quarter of an acre, and of the remainder only 21 exceeded ten acres in area. The percentage of fires attributed to locomotives rose from 54·4 during 1920 to 74·2 during 1921, a direct result of reversion to coal as stated before.

Considerable improvement was effected in right of way conditions throughout the district, though additional work is required on branch lines of the Canadian Pacific railway and on parts of the Kettle Valley railway.

Locomotive inspection was carried out to a much greater extent than formerly, an additional fire inspector having been obtained, largely for this work.

The thanks of this service are due to the responsible officers of the Canadian Pacific Railway, the Canadian National Railways and the Kettle Valley Railway for co-operation in carrying out the provisions of General Order 107 of the Board of Railway Commissioners in connection with railway fire protection.

IMPROVEMENTS

Forest Reserve Improvements.—The close of the field season of 1921 was noteworthy in that it saw the final linking up of the remaining forest rangers' headquarters with the superintendent's office by forest service telephone lines. As a result of this work telephone communication can be had with all reserve units, a circumstance which will facilitate to a great extent hereafter, administration and fire protection on forest reserves in this district. The most important project was the construction of a telephone line from Kamloops to Pass Lake ranger station, thence by forest reserve trails to Criss Creek ranger station via Tranquille lake and Little Cariboo plateau. A spur line connects a proposed new lookout station on Porcupine ridge. The total length of this line is something over 37 miles, of which 12 miles is pole-line construction and the remainder tree-line. A telephone line ten miles in length connecting Salmon River ranger station with the public works department rural lines at Adelphi post office, and another line 13 miles in length, connecting the Amphitheatre ranger station with Ashcroft, were also built. From the last-named point a spur line four miles in length was constructed to the top of the Cornwall hills to provide connection for the lookout station to be installed on that summit. In all over 65 miles of forest telephone line were put in, constituting a record in construction for this district, for one season.

In trail construction the principal project was the South Boundary trail, 11 miles long, built through the Monte Hills forest reserve. In addition short connecting links totalling five miles were constructed at other points. This service in co-operation with the Provincial Roads Department completed during the spring a much needed improvement, in the construction of a cut-off road into the summer resort at Paul lake in the Niskonlith reserve, which eliminates a reverse grade over a hill some 300 feet high.

Maintenance work was carried out on buildings at various reserve headquarters, notably Louis Creek and Trout Lake ranger stations, to put our improvements in proper condition.

Fire-ranging Improvements.—A very important project was completed during the 1921 season in the Salmon Arm fire-ranging district, in the installation and equipment of a lookout station on Eagle Pass mountain, elevation 8,000 feet. This mountain is situated at the head of Crazy creek and affords direct view over the lower Eagle valley, a region of intense fire-hazard. This project involved the construction of 13 miles each of telephone line and trail, and the construction of a stone lookout cabin on the summit. A log cabin, half-way up the trail, was also erected for the convenience of the ranger packing in supplies to the lookout man.

In the Salmon Arm district, also, there were constructed at Sicamous a warehouse and boat-ways required for proper care of equipment, and a cabin at Cinnemonsin narrows on Shuswap lake to be used as fire ranger's headquarters.

In the Revelstoke district four miles of the Big Bend telephone line were rebuilt. This was made necessary by the abandonment of the old Big Bend trail, along which the original telephone line was constructed, consequent upon the completion of a wagon road in a different location.

AEROPLANE OPERATIONS

The Air Board provided one HS2L flying boat from the Vancouver air station, which was operated, entirely without the usual and essential accessory facilities, from the beach on the river front at Kamloops, in the same manner as was done during the preliminary experimental operations in the fall of 1920. This machine, and those which subsequently replaced it, were flown from Vancouver to Kamloops, thus eliminating the cost of shipment by freight, which accounted for a large percentage of the total cost incurred in the 1920 operations.

The first machine was delivered on July 12, 1921. It developed defects which although of a minor nature, caused extensive time losses. On August 16 it was replaced by another of the same type. This second plane functioned satisfactorily until September 2, when engine trouble developed. It was returned to Vancouver on September 12, and on October 8 the first machine, rebuilt, was brought back for photographic work. This plane returned to Vancouver on October 14, completing operations at Kamloops for the season.

Seventy-one flights were made in connection with Kamloops operations, of which seven were delivery or return of machines from Vancouver air station. This feature alone accounted for 21 per cent of the total flying time of 100 hours. Flights for this service totalled 57 hours flying time, and an air mileage of 3,771. There were planes stationed at Kamloops for 74 days, on 38 of which, or 47·4 per cent, flights were carried out. These figures show that an air station equipped with one spare machine should be able to provide continuous flying.

An analysis of the work carried out for this service shows that 48 per cent of the flying time was utilized for fire patrol and fire reconnaissance. This is partly due to the fact that planes were in operation largely during the peak of the fire season, when this work was of the most pressing importance. Fire reconnaissance flights in par-

ticular gave the best results in time and money saved, of any undertaken. It was found possible to fly at a comparatively low elevation directly over fires burning. Observations were made of the direction in which fires were heading, the timber values menaced, the location of natural strategic points for control, the best ways of getting men on to the fire-lines, etc. Fire rangers given preliminary flights over fires under their charge were able to obtain this essential information with practically no loss of time.

Exploration and timber examination flights accounted for 19 per cent; administrative work, including improvements, investigation, and inspection, and observation flights for forest officers occupied 13 per cent; photography 9 per cent, and miscellaneous purposes 8 per cent, of the flying time.

Besides operations based on Kamloops, a considerable amount of flying was done for this service from the Vancouver air station, in connection with the Coast fire-ranging district. Altogether twenty flights were made, totalling approximately 2,000 miles. Forty-eight per cent of the flying time involved was used in fire-patrol work; 28 per cent in photographic experiments; 16 per cent in timber reconnaissance, and 8 per cent on administrative work.

The fire-patrol work consisted of week-end flights, mostly on Sundays, covering the lakes and rivers frequented by fishermen and city dwellers holidaying in the woods. The psychological effect of aeroplane patrols produced a very favourable reaction in the public mind, as evidenced by newspaper articles and reports from forest officers coming in contact with people in their districts. It is certain that, as a preventive publicity measure, these week-end patrols have been of immense importance and benefit to the service, in forest protection in the Coast district.

SILVICULTURE

Forest Reserve Operations.—A party of forestry students, to which was attached a technical forester, completed during the field season of 1921, an exhaustive study of the lodgepole pine type as developed on forest reserves in the Dry Belt. Detailed yield figures will be available shortly as a result of this work.

Timber sale business slackened off greatly, due to general adverse economic conditions. Only one small sale was awarded during the year under review. Timber permit business was also stationary.

Tree Seed for Great Britain.—Continued requests by the British Government for large quantities of seed of Sitka spruce and coast-type Douglas fir and hemlock, for use in reforestation work in the British Isles, made necessary the construction of a modern and completely equipped seed-extraction plant at New Westminster. This plant was started September 1 and commenced operations October 15, 1921. Cone collections made by this service totalled 3,237 sacks of Sitka spruce, 3,646 sacks of Douglas fir, and 353 sacks of Western hemlock. The above yielded seed on extraction as follows: Sitka spruce, 8,125 pounds; Douglas fir, 4,500 pounds; and Western hemlock, 410 pounds. Excess yields over estimates due to improvements developed in the operation of the extraction plant, produced a considerable surplus of seed over the British Government's requirements. Arrangements for the disposal of this surplus are under way at the present time.

Insects.—Operations designed to control bark beetle infestation of Western yellow pine in Prospect valley, British Columbia, were continued during the spring of 1921, along the lines outlined in my annual report for the fiscal year 1920-21. The 1921 operations resulted in the cutting and burning of over 1,300 trees, sealing approximately 500,000 feet board measure. From present indications it is figured that one more year's work, during the spring of 1922, will finally control this outbreak.

RECREATIONAL USES OF FOREST RESERVES

The popularity of forest reserve summer resorts at Trout lake and Paul lake increased tremendously during 1921. Visitors were registered from the United Kingdom, from the Hawaiian islands, from South America, and from most of the states of the United States and provinces of Canada. Fishing conditions at Paul lake were better than for several years past, but Trout lake continued rather poor. Steps were taken by this service in co-operation with the fisheries office for this district to restock Trout lake. During the season 30,000 fry of Kamloops trout were obtained from Paul creek and placed in Trout lake. Sixty thousand fry were transferred also from Paul creek to Paul lake.

During 1921 a record system was installed whereby fishermen registered their catches in Trout and Paul lakes. The records show that 717 fish, totalling 1,271 pounds, were taken from Trout lake, and 4,769 fish, totalling 11,444 pounds, from Paul lake. These figures indicate the extent to which this sport is being pursued in this district.

EQUIPMENT

Motor transport facilities were increased by two trucks and one delivery wagon. A truck was purchased also for use in the Coast district. Seven additional portable gasolene fire-pumps, purchased at the beginning of the year, brought the total available for the 1921 fire season to nine. These two mechanical aids to fire protection gave greatly increased efficiency and, to their use is due, to a considerable extent, the more favourable results secured in fire-control work during the 1921 season.

The Sicamous warehouse mentioned above in this report is located at the centre of the area of greatest fire-hazard in the Railway Belt. In the warehouse was kept a reserve of fire-fighting equipment of all kinds including specially devised emergency tool-chests and mess-kits ready for shipment to any point at a minute's notice. These pre-arranged facilities had also a tremendous effect in improving fire suppression and control operations.

APPENDIX No. 6

REPORT OF THE SUPERINTENDENT OF THE FOREST PRODUCTS LABORATORIES OF CANADA, W. KYNOCH

Although the reorganization of the staff was not quite complete at the end of the period, in many respects the year 1921-22 may be justly regarded as a very successful one. Requests for technical information and service dealt with far exceeded in number those received in any previous year and outnumbered those of the preceding fiscal year by more than two hundred. The paper-mill (of semi-commercial size) operated, on research and demonstration work, to a greater extent than in any year since its installation. The number of visitors to the laboratories was greater than in 1920-21 by nearly one hundred. Several entirely new and valuable features were introduced. With a view to wider and more rapid dissemination of technical information resulting from our researches, a publicity service was established, items of general interest being distributed weekly to the leading Canadian newspapers and technical and trade journals, as well as to some of those abroad. Frequent use of these items was made. The Technical Service series was inaugurated. This is a series of circu-

lars announcing certain services which the laboratories are in a position to give (such as the analysis of pulps and papers, the identification of woods, etc.). The circulars were widely distributed to industries and persons likely to be interested. The many requests for service received as a result indicate that the technical services are a useful facility to the industries. Finally the research and investigative work was considerably greater in amount and variety than that carried out for some years and compared very favourably with that conducted at the laboratories in any year since their inception.

A brief review of the activities of the various divisions is given below.

Division of Pulp and Paper

Three major investigations were carried on by this division during the year. In addition the division gave invaluable co-operation in a fourth major investigation conducted by the Division of Timber Physics. Brief particulars regarding each of these researches and the progress made follow.

Comparison of Rate of Growth and Chemical Composition of Canadian Pulpwoods.—The object is to determine the effect of the rate of growth upon the chemical composition of pulpwoods with special reference to the percentage of cellulose present. Extensive preliminary work, which consisted of the development of special methods of analysis, was completed.

Determination of the Burning Temperature of Exposed Chips in Sulphite Cooking.—The object is to determine the maximum temperature to which a digester charge of spruce, jack pine, or balsam fir chips may be raised, before the charge is completely covered with acid, without injury to the chips. The actual temperatures for spruce and jack pine were determined.

Pulping Qualities of Fire-killed Wood.—The object is to determine the effect of fire-killing, superficial charring, and subsequent fungal attack upon the pulping qualities of spruce, jack pine, and balsam fir. The work on spruce, both green and fire-killed, was completed. Work on all these investigations will be continued.

Water Storage of Ground-wood Pulp.—The object of that portion of the project undertaken by the division is to determine the quality of the pulp after having been stored in water under various conditions for a year and a half. The work was completed so far as the quantity of material available was concerned. Results were such as to justify semi-commercial trials of water storage which will be made during the following year. (See also under Division of Timber Physics.)

A considerable number of minor investigations was conducted including research on hemp hurds as a paper-making material, determination of the maximum strength that can be developed in paper made from kraft pulp, work on the standardization of methods of testing pulps for strength, utilization of ground-wood screenings, etc. Other minor investigations unrelated to pulp and paper but necessitated by demands made upon the Laboratories were also carried out by the chemists of the division. These included the development of an efficient method of bleaching eel grass without destroying its natural resiliency, and further work on the chemical properties of certain woods for separators in storage batteries.

Division of Timber Physics

Three major projects were conducted by this division. Particulars follow:—

Wood Sections.—The object of this work, which was continued from last year, is the building up of a collection of authentic microscope slides of the important commercial timbers of the world. Such a collection would be invaluable for research

purposes, as an intimate knowledge of the minute structure of woods is the key to innumerable problems encountered in their industrial use. Considerable progress was made during the year, some 1,400 permanent slides being prepared, together with a large number of photomicrographs of woods and fibres. Practically all the Canadian woods of commercial importance have now been dealt with.

Water Storage of Ground-wood Pulp.—The object of this investigation is to determine whether the decay which frequently occurs in stored pulp, and is a cause of serious monetary loss, can be prevented by storage in water, and, if so, whether the pulp thus stored is otherwise adversely affected for paper manufacture. Ground-wood pulp was stored in water under certain conditions and at the end of a year and a half was found to be entirely free from attack by moulds and wood-destroying organisms.

Decay of Timber in Buildings.—The object of this investigation, which has been in progress for some years, is to secure exact and detailed information as to the conditions which facilitate the action of various wood-destroying fungi on woods used for interior construction in mills, factories, etc., and to work out procedure and methods by means of which the decay can be prevented. The monetary losses which result from such decay, particularly in large manufacturing buildings, are very much greater than is usually supposed. At the same time wood, apart from decay, is an eminently suitable material for mill construction. Expert technical knowledge of this subject has been acquired at the Laboratories as a result of careful decay studies in some 300 large buildings and, if made use of in time, makes possible the prevention of such decay. During the year further publicity was given to various special phases of the decay problem by means of periodical articles and addresses. The preparation of a bulletin on the control of decay in buildings was practically completed by the Pathologist.

A number of minor investigations was conducted by the division, including work on the bending of woods, particularly for the manufacture of certain sporting goods, and studies of pulp attacked by moulds and fungi, submitted by manufacturers, with a view to devising control measures. A special feature was an extensive study of the theory of kiln-drying, supplemented by practical studies at commercial plants. This was undertaken as a preliminary to the carrying out of research and demonstration work in this important subject at the Laboratories. A considerable number of wood identifications was made in response to requests from firms and individuals. Extensive photomicrographic work was carried out under the direction of this division.

DIVISION OF TIMBER TESTS

Three major investigations were conducted by this division during the year. Particulars follow:—

Mechanical and Physical Properties of Woods Grown in Canada.—The object of the work is to produce authoritative and complete data regarding the strength, specific gravity, shrinkage, etc., of Canadian woods of both actual and possible commercial importance. The obtaining of reliable data covering different conditions of growth, etc., involves the making of a large number of tests on each species of timber. Over 8,000 tests were made during the year, while at the Vancouver branch laboratory nearly 4,000 were made. This number considerably exceeds that of any previous year since testing was begun. Sixteen species were tested.

Glued Joints.—The object of this investigation is the determination of the strength and permanency of joints made with various glues and wood species with reference to the glue, treatment, and age. Material of a large number of different

glues was collected and testing was begun on the hide glues. The work will continue during the ensuing year and attention will be concentrated on determining the efficiency of a number of commercial glues for joint work using the chief woods employed in cabinet and furniture manufacture.

Nail-holding Characteristics of Woods.—The object in this case is to investigate the properties of woods in relation to the driving and pulling of nails under various conditions of seasoning. A considerable amount of testing with specially designed equipment was done during the year, different types of nails and the green material of eleven different species of wood being used. The work will be continued.

In addition to the above a synopsis of the results obtained in a project completed in a previous year, namely, "Nova Scotia Mine Timbers," was completed and copies forwarded to the mine operators interested.

A variety of minor investigations was also carried out by this division. These included work on the strength of aeroplane members with special reference to the question of deterioration with age and use, strength of paper cores of different designs, strength of joists, further tests on fibre-board, etc.

DIVISION OF WOOD PRESERVATION

The various major investigations under way in this division during the year all dealt with the preservative treatment of railway ties, work being conducted on two woods, namely, hard maple and aspen. Particulars are as follow:—

Adaptability of Hard Maple Cross-ties to Creosote Treatment.—The object of the work is (*a*) to determine the rate of seasoning of hard maple ties and to ascertain the length of seasoning period necessary to bring them to "treatable condition" and (*b*) to determine the influence of the various factors of treatment on absorption and penetration of creosote oil in hard maple and to ascertain the conditions of treatment which give the most satisfactory results. The seasoning study (*a*) was completed. Extensive work was done on (*b*) a number of charges of test pieces being treated and results analyzed by special methods developed at the Laboratories. A satisfactory treatment had not been worked out at the close of the year and the investigation will be continued.

Adaptability of Aspen Cross-ties to Creosote Treatment.—The objects of the investigation are the same as in the case of hard maple. Large quantities of aspen occur in certain parts of Canada, and in portions of Alberta much aspen is found contiguous to railway lines. Little if any use is made of this timber. If it can be satisfactorily creosoted, however, and its natural perishability thus overcome, it should become of considerable value as a tie material. A number of aspen logs shipped to the Laboratories from Alberta by the Canadian Pacific Railway were sawn into No. 1 half-ties and standard test pieces. A seasoning study on the half-ties was begun, determinations of rate of seasoning being made periodically. The test pieces were piled for seasoning and work on treatment will be begun as soon as they are sufficiently seasoned.

The other work of the division included a number of minor investigations. Work was done on the development of a suitable fire-retardant treatment for wood. Such a treatment would be of the greatest value for interior woodwork in buildings and elsewhere. Existing processes appear either too expensive or subject to other serious objections. Material progress had been made by the close of the year. The chemistry of wood preservatives received a good deal of attention. Proprietary preservatives to a considerable number were carefully analyzed and tested by special method in order to compare them with good grades of creosote oil. Samples of tars, tar-creosote mixtures, and creosotes submitted to the Laboratories for examination

as to suitability for use in preservative treatment of ties or other timber were analysed, tested, and reported upon and recommendations as to specifications made. Many samples of treated wood were also submitted for examination as to efficiency of treatment, etc., and recommendations and suggestions made for improvement in procedure in many cases. Treatment of telephone pole brackets received special attention.

EXHIBITS

The collection and preparation of exhibits of forest products and articles manufactured therefrom was continued and a number of additions made to the permanent collection at the Laboratories. Such work included the making of cabinets to contain such additions. Exhibits were prepared also for the use of other Government offices and for display in public places. In September the Department of the Interior occupied space at the Seventh National Exposition of Chemical Industries at New York and an exhibit was prepared at the Laboratories to illustrate some of the possibilities of Canada as a field for chemical industries requiring electrical power or products of the forest. Large wall maps showing the distribution of water-power and of the pulp and wood-distillation industries in Canada were displayed and a variety of products was shown in a manner which attracted considerable attention to Canadian resources.

The demand for hand-specimens of Canadian woods continued during the year and necessitated the making of a fresh supply.

The work of collecting various products which are not subjects of research by other divisions (e.g. lumber by-products, resins, gums, extracts, distillates) has enabled the Exhibit Specialist to undertake the task of replying to inquiries concerning such products and their manufacture. Work on exhibits is, in fact, so closely allied to the publication of information that it has included the preparation for the newspapers of items of technical information and announcements of technical service already referred to as having been instituted during the year under review.

LIBRARY

The library of references, which deals with the technology of forest products, the manufactures therefrom, and related matters, was considerably enlarged and improved. Literature bearing on every phase of the subjects mentioned has been collected for the past eight years and the reference library thus accumulated has proved invaluable to the technical staff in their research and other work.

INFORMATION FURNISHED

The furnishing of technical information in response to inquiries relating to timber, forest products, and derived products is a most important function of the Laboratories. This work involves a careful study of the available data on the subject in question and, in some cases, tests or investigations, the final step being the compilation of a report which is forwarded to the inquirer. Inquiries numbering 427 received attention during the year—a considerably greater number than in any previous year since the establishment of the Laboratories. The growing demand, on the part of the wood-using industries, for the services of the Laboratories is clearly indicated by the continually increasing number of technical inquiries received. A feature worthy of mention also is the expressions of appreciation of the assistance given which are frequently received.

GENERAL

A number of technical articles was prepared during the year by members of the staff and published in Canadian and other periodicals. An exhaustive bulletin dealing with hardwood distillation in Canada was a special feature. This is expected to appear early in 1922-23. Several lectures and addresses were also delivered before scientific, technical, and other societies.

The research and other work of the Laboratories involves a considerable amount of special photographic and photomicrographic work and a high standard in this connection has been reached. Worthy of mention is a series of photomicrographs of wood structure, fibres, etc., prepared by request for Volume 3 of "The Manufacture of Pulp and Paper" a standard textbook issued by the pulp and paper industry of the United States and Canada.

It is noteworthy that increasing activity in forest products research is to be seen in several countries in which the forest resources and the wood-using industries are much less important commercially than with us. In Canada these industries are, in the aggregate, second in importance only to the agricultural industries and the economic possibilities of research in this field are each year becoming more clearly evident.

PART IV

RECLAMATION

REPORT OF THE DIRECTOR OF THE RECLAMATION SERVICE, E. F. DRAKE

The unusual climatic conditions to which the semi-arid districts of southern Alberta and Saskatchewan have been subject during the last few years have led to a great demand for surveys to determine what areas it is possible to serve with water, and the work of the Reclamation Service, whose duty it is to make these investigations and surveys, has increased tremendously. The year 1921 brought more demands for advice and practical assistance than any previous year.

CLIMATIC AND CROP CONDITIONS FOR 1921 IN SOUTHERN ALBERTA

Statistics show that the five years just ended constitute the longest consecutive period of sub-normal rainfall for many years, and some increase in precipitation may therefore be reasonably expected for the next few years, as periods of drought and abundant rainfall usually occur in cycles.

From December 1, 1920, to the end of March, 1921, the weather was mild with practically no snowfall. This condition was excellent for stock and very little feeding was necessary. Good weather was experienced in April, when light rains occurred, seeding being practically finished by the middle of the month. May was very warm but the rainfall was scanty and there was no reserve moisture in the soil. The month of June was extremely dry, crops being seriously damaged through lack of rain and by hot, dry winds. In July the rainfall was normal, but came too late to save the crops.

IRRIGATED CROPS

Because of light rains during April, which created a good seed bed for the crops, many farmers delayed their irrigating in spite of repeated warnings from the press and irrigation officials, and when the dry, hot weather came in June, the crops on irrigated lands suffered before water could be applied. In spite of this setback, which reduced the yield considerably, the irrigated crops were fair and averaged approximately three times the yield of those on dry land in the same areas. More acreage was irrigated in 1921 by a larger number of farmers than in any previous year. The large amount of surplus fodder grown on these lands did much to compensate for the shortage on the adjacent dry lands.

PROGRESS IN IRRIGATION DEVELOPMENT

Corporation Projects.—Development of the large corporation projects has been seriously retarded by the war and the conditions which have existed since. With the return of better times, and a fuller realization on the part of the people of the

benefits of irrigation, all indications point to an influx of settlers and the rapid colonization of the available irrigable lands in these projects. The farmers now settled on these lands are every year showing a greater tendency to abandon the system of agriculture to which they have been accustomed and to adapt themselves to the diversified crop system and intensive farming necessary under irrigation. A large amount of renewal and betterment work has been done during the year and the canal systems of all the projects are reported as being in excellent condition.

Irrigation Districts.—It is probable that corporate irrigation development will be carried on in the future entirely by the district form of organization. The province of Alberta now has an up-to-date and effective Irrigation Districts Act, and a great deal has already been accomplished under its provisions. An Irrigation Council appointed by the province is exercising close supervision over the organization and construction of a number of districts and the machinery provided seems to be running smoothly.

Several districts were organized under this law in 1920, but the first of these to complete its preliminary organization found no market for its irrigation debentures, which were a new commodity in the Canadian financial market. It appeared for a time that further development work by districts must for this reason be indefinitely deferred, but the Provincial Government came to the rescue and by an amendment to the Irrigation Districts Act, passed at its 1921 session, made arrangements to guarantee the bonds of irrigation districts which were favourably reported upon by consulting engineers. This guarantee proved effective and the bonds of this district, as well as those of another organized later, found a ready sale at a fair price and construction work was begun.

These preliminary difficulties having been successfully overcome development work was started. It then became evident to those who were closely studying the problem that many of the individual holdings in the districts were too large to be properly cultivated under irrigation conditions, owing chiefly to the high cost of the works, the inexperience of most of the settlers, and the difficulty of securing a sufficient and dependable supply of skilled irrigators. In order to achieve success in irrigation farming when the cost of the works is fairly high, every acre must be carefully cultivated and made to yield good returns. Generally speaking, the average farm unit should contain from 80 to 160 acres of irrigable land, while the holdings usual in dry farming in this country—and common in the newly organized irrigation districts—run from 320 to 640 acres, or even more. The provincial authorities, foreseeing the difficulties farmers would encounter in redeeming their bonds under such conditions, decided that the larger holdings should be split up, and in 1921 a colonization branch was organized under the control of the Irrigation Council of Alberta. This branch will list the excess land holdings that should be disposed of by the farmers and will carry on a colonization campaign for the purpose of selling these lands and placing additional settlers on them. The practical effect of this effort will be watched with great interest.

Since the Irrigation Districts Act was passed seven districts containing 206,000 acres of irrigable land have been organized; six more containing 35,000 irrigable acres are nearly ready for organization, while five additional projects containing a total of 552,000 irrigable acres are in various stages of preliminary organization.

In Saskatchewan many small irrigation schemes are being operated, but no large co-operative projects have yet been developed. An Irrigation Districts Act very similar to that of Alberta was passed in 1920, but has not yet been used. One project has, however, been surveyed and an irrigation district is now being organized. The Act will therefore probably be brought into practical operation at an early date.

Small Irrigation Projects.—The construction of small individual projects is interesting many farmers whose lands can be irrigated by direct diversion from

nearby streams in the semi-arid areas and the waters of some of these streams have been practically all appropriated. Some of these small projects have been operated successfully for many years and there are at present 483 licensed or authorized schemes, while applications for 228 new schemes were recorded in 1921, making a total of 711 small projects in operation or under construction under the supervision of the Reclamation Service.

Water Users' Associations.—When the development of any large irrigation project or district is completed, the simplest and most satisfactory method of operation and maintenance will probably be by the formation of a number of water users' associations, each consisting of the water users under one or more of the lateral ditches of the project. These local associations, by operating their own systems, can more satisfactorily serve their own requirements and greatly simplify the administration of the whole project. Owing to lack of complete settlement, the time has not yet arrived when these associations are really necessary, but four of them have been formed in the Lethbridge section of the Canadian Pacific Railway Company's projects and are already proving their value.

Irrigation Development Association.—This organization, with headquarters at Lethbridge, was formed some years ago for the purpose of furthering the use of water, aiding in the organization of irrigation districts, and maintaining connections between the farmers and the Dominion and Provincial Governments. The association is still taking an active interest in irrigation development and during 1921 its executive committee presented the case of the farmers of southern Alberta before the International Joint Commission at its hearing in Lethbridge in September.

IRRIGATION IN 1921

During the year 220,000 acres were irrigated in the five large projects now in operation, a satisfactory feature of the season's operations being the large amount of fall irrigation carried on. Construction work was started during the year and is being actively prosecuted on two more large projects, the Lethbridge Northern irrigation district with 105,000 and the United irrigation district with 23,000 irrigable acres. In the United district (south of the town of Macleod) a large proportion of the excavation work and hauling of material is being done by the farmers themselves in small contracts. This lends itself to cheap construction and provides work for men who have no crops of their own to harvest, besides keeping a considerable part of the outlay for construction in the district.

The preliminary surveys for practically all projects—large or small—were made by the Reclamation Service in pursuance of the policy of the Federal Government that the surface water it controls shall be so allocated as to serve the public to the best advantage. In addition to the constructed schemes, surveys have been completed for thirteen other projects which have been found feasible and are now in different stages of organization. Surveys are now being carried on in six new projects and preliminary surveys were also made of several projects which were not found to be feasible or economical and were therefore abandoned.

DUTIES OF THE RECLAMATION SERVICE

It is the duty of the Irrigation Division of the Reclamation Service to administer the surface water supply (with the exception of water powers) in the Prairie Provinces. This is done under the provisions of the Irrigation Act and includes the use of water for domestic, municipal, industrial, irrigation, and other purposes. To administer the water supply so that the greatest benefit may result to the public is a heavy responsibility, and a large staff of engineers and helpers is needed to deal

with the many different phases of the work. Because of the ever-increasing demands for irrigation the work has been growing heavier each year and the present year has been no exception. The work comprises:—

1 Inspections and surveys of small schemes, new or in operation;
2 Supervision of large projects under construction or in operation;
3 Duty of water experiments and climatic studies;
4 Soil surveys and experiments and seepage investigations;
5 Plane table and final surveys to complete some projects, and location, topographical, and reconnaissance surveys in connection with new projects and the development of reservoir sites.

These surveys and investigations of various kinds were carried on at a number of different points throughout southern and central Alberta and southwestern Saskatchewan. Good progress was made during the season which ended in November, 1921, and during the winter months the engineers and some of the more skilled assistants were employed in the office preparing plans of work done in the field and making the necessary designs, studies, and cost estimates of the different projects. The following schedule shows the development of irrigation up to this date:—

IRRIGATION DEVELOPMENT IN WESTERN CANADA

Project	Source of supply	Area of tract	Irrigable area	1921 Operations		Cost of construction up to 1921	Mileage of Canals
				No. of water users	Area irrigated		
		acres	acres		acres		
Constructed and in operation—							
C.P.R. West'n sec.	Bow riv	1,145,336	218,980	875	33,618	$5,116,252 00	1,469
C.P.R. East'n sec.	Bow riv	1,212,074	400,000	924	88,299	10,924,738 00	2,500
Alberta Ry. & Irr. Co.	St. Mary riv.	434,509	130,000	865	75,550	1,874,601 00	200
Taber irrigation district	St. Mary riv.	30,365	17,244	160	10,352	272,000 00	72
Under construction, partly in operation—							
Canada Land & Irr. Co.	Bow riv	452,482	202,640	64	9,400	6,473,207 00	355
Under construction, not in operation—						Estimated cost	
Lethbridge N. irr. dist.	Oldman riv.	231,220	105,000			5,400,000 00	
United irr. dist	Belly riv.	61,195	23,000			324,000 00	
Found by surveys to be feasible and economical (dist. organized)							
Macleod irr. dist.	Waterton riv.	108,603	49,649			2,060,000 00	
Medicine Hat E. irr. dist	Ross crk.	4,800	2,900			36,140 00	
Little Bow irr. dist.	Highwood riv.	11,490	3,278			74,250 00	
Found by surveys to be feasible (dist. not organized)—							
Evremore irr. dist.	Bow riv.	18,776	4,100			250,000 00	
River Bow irr. dist	"	16,688	5,792			314,357 00	
New West irr. dist.	"	13,015	7,629			385,000 00	
Letbbridge S.E. irr. proj.	Waterton, Belly, St. Mary, Milk rivs.	1,182,781	390,708			15,800,000 00	
Robsart-Vidora proj.	Frenchman riv. and Belanger, Davis, Sucker and Fairwell crks.	14,000	10,000			343,841 00	
Incompletely surveyed, believed feasible—							
Retlaw-Lomond irr. dist.	Bow and Oldman rivs.	418,630	70,000			2,500,000 00	
Champion irr. dist.	Highwood riv.	184,860	50,000				
Granum irr. dist.	Willow crk.		4,500			260,000 00	
Beaver Crk. proj.	Beaver crk.		9,000			450,000 00	
Surveys commenced—							
N. Saskatchewan irr. proj	N. Sask., Clearwater, Red Deer and Battle rivs.	3,538,760	1,778,784 (estimated)				
Private schemes (483)—							
Small private schemes			105,397				
Prospective development—							
Co-operative			250,000				
Small private schemes			85,000				
Total			3,923,601				

WATERWAYS TREATY

The "St. Mary and Milk River Case", dealt with under the provisions of the Waterways Treaty, and to which reference has frequently been made in earlier reports, has apparently now been finally settled; at all events, it has advanced another stage toward final settlement.

Provision is made in article VI of the Waterways Treaty between Great Britain and the United States for the division of the waters of the St. Mary and Milk rivers, and their tributaries in the state of Montana and in the provinces of Alberta and Saskatchewan, between Canada and the United States in such manner as to recognize to some extent the prior appropriations from these streams in the respective countries, and to ensure approximately equal division of the waters, it being stipulated, however, that more water may be taken by one country from one stream and less from another, without, however, affecting the substantially equal division of the total flow. The case was first considered officially by the International Joint Commission at a public hearing at St. Paul, Minnesota, in May, 1915, at which all the interested parties were represented and considerable evidence was taken. This was followed by arguments by counsel, and later by the filing of written briefs. Again, in May, 1917, a further hearing was held at Detroit, Michigan, where additional arguments were submitted by counsel and, still later, final arguments were heard at a meeting of the Commission held in Ottawa in May, 1920.

In the meantime, and pending the issuance of a definite order, it became necessary to provide for some method of dividing the waters of these streams so that irrigation development might proceed without serious hindrance. Therefore, on May 24, 1918, the commission issued an interim order describing in considerable detail the methods to be followed by the designated representatives of the United States and Canada, respectively, in measuring and apportioning the waters of these streams and their tributaries during the irrigation season of that year. This order was found to be satisfactory as a temporary expedient. It was therefore renewed by the commission on April 3, 1919, April 7, 1920, and April 6, 1921, in substantially the same terms.

Under these interim orders the Reclamation officers of Canada and the United States continued their measurements of stream flow and apportioned the waters as was found necessary from time to time. No serious difficulties were encountered, but it soon became apparent that no considerable development of irrigation would be possible in either country until the commission made some final order defining the proportion of stream flow that would be permanently assigned to each country. This was particularly the case in southern Alberta, where surveys carried on by the Canadian Reclamation Service had demonstrated the feasibility of irrigating a considerable additional area of land by the utilization of all the available stream flow and the conservation of flood flow wherever possible. It was felt that the actual construction of works of any magnitude would be inadvisable pending a final decision by the commission.

In September, 1921, the commission held further hearings at Chinook, Montana, and at Lethbridge, Alberta, for the purpose, primarily, of giving the locally interested persons an opportunity of presenting their views directly to the commission and to place the commission in possession of any facts which might not have been clearly brought out at any of the earlier hearings or by any of the arguments submitted by counsel.

Following these hearings the commission at its next regular meeting at Ottawa on October 4, 1921, gave an order which for all practical purposes may be regarded as an interpretation of certain alleged ambiguities in article 6 of the treaty, and as a final order apportioning the flow of these streams between the United States and Canada, respectively.

On October 6, 1921, the commission made a further order or recommendation addressed to the Governments of the United States and Canada jointly. Realizing that the control of flood water is the crux of the situation, in so far as irrigation development in southern Alberta, southwestern Saskatchewan, and northern Montana is concerned—in so far as this development is dependent upon the waters of the St. Mary and Milk rivers and their tributaries—the commission recommended that the United States and Canada should jointly construct a reservoir for the control of flood waters at St. Mary lakes, in the state of Montana; that the United States should construct the Chain of Lakes reservoir in the Milk River valley below the point where Milk river crosses the international boundary for the last time—this for the more effective control of the flood waters of that stream; and that Canada should construct a reservoir in Verdigris coulee in southeastern Alberta, where it is possible to conserve waters diverted either from the St. Mary or the Milk river. The commission further recommended that these reservoirs, when constructed, should be maintained and operated under its control so as to ensure the most beneficial use possible of the waters.

No action has as yet been taken by either Government to carry these recommendations of the commission into practical effect. It will probably be necessary, before any definite action is taken, to have an investigation made by the engineers of the respective countries, either severally or conjointly, to determine the feasibility, the practical effect, and the cost of carrying the recommendations of the commission into effect. The recommendations are believed to be entirely practicable from an engineering point of view. The questions to be studied have, therefore, largely to do with the size of the several reservoirs, their approximate cost, the manner in which that cost shall be shared—in so far as international co-operation has been recommended—and the manner in which the stored water shall be apportioned to the two countries, respectively.

DRAINAGE

The investigation of reclamation projects during the 1920-21 season by the engineers of the Drainage Division of the Reclamation Service has resulted in the addition of three more projects initiated by the Government to the eleven previously investigated and recommended as feasible and in the public interest, making a total area of approximately 220,000 acres of swamp and submerged lands that can be economically drained and made available for settlement. While the reclamation of this area would provide accommodation for no less than two thousand families, there would be a further and far-reaching benefit in the greater consolidation of the present scattered and uneconomic form of settlement in the vicinity of the projects, in making possible the construction of roads to reach many good farming districts at present unapproachable, thus forming the nuclei of extensive farming communities. The cost of the reclamation works, according to estimates of the engineers, would be more than reimbursed by the sale of the Crown lands and the assessments on the privately owned lands benefited.

These recommended reclamation projects embrace principally such lands as experiment and experience have shown to be the most readily available for agriculture and the growing of hay. Lands requiring considerable expense in clearing of timber, moss, and reeds have been avoided for the present in favour of those more nearly ready for the plough or the growing of hay, except in cases where such clearing is only required on a small proportion of the project.

In addition to the investigation of the above projects, which have been recommended for construction by the Federal Government, surveys of the extensive swamp lands known as the Carrot River Triangle were commenced in the spring of 1921 and carried on vigorously until far into the winter. This tract lies between the Saskatchewan and Carrot rivers in Saskatchewan and Manitoba and has an area

approximating 1,100 square miles. It lies in the direct route of the proposed railway running from Melfort in Saskatchewan to Pas in Manitoba, which when built would connect the grain belts of Saskatchewan and Alberta with the Hudson Bay railway and Port Nelson. Should this project prove feasible, its reclamation would ensure revenue for the railway and the railway would provide the needed transportation facilities for the farming community. Another season's work is required to complete the surveys and investigations, which on account of the difficulty of penetrating the swamps during the open season will probably be again carried on through part of the winter.

Three other projects, initiated by the Federal Government under part 4 of the Drainage Regulations, were investigated but not recommended for reclamation on account of the high cost of construction, the prevalence of deep moss muskegs, the poverty of the soil, or on account of their containing upwards of fifty per cent of privately owned lands and thus coming under the provisions of part 3 of the Drainage Regulations which contemplate the initiation of the work upon petition of the landowners under provincial laws.

Many applications for private drainage schemes under part 1 of the Regulations were received, but when it became known that the minimum price of Crown lands had been increased from one dollar to five dollars per acre, while the area that might be sold to any one applicant was reduced from 1,280 to 320 acres, many withdrew their applications and others who allowed their applications to stand did so under protest. Twenty-five new applications of this class were dealt with and twenty-six inspections were made of those already under way.

The construction of the Waterhen Lake drainage project, initiated by the Government, was commenced in May and the work of excavation was continued throughout the season until the freeze-up in November. Approximately seventy per cent of the excavation was completed. The water of the lake will be let off about midsummer of 1922 and as soon as the lake bed and the marsh dry sufficiently to permit the construction of the bridges, culverts, and small laterals this work will be proceeded with, but it is expected that some of the minor details will not be completed in 1922.

Difficult problems are being encountered in many projects regarding the treatment of various classes of swamp lands after the water has been drained off. Various methods of clearing the land of superfluous accumulations of undecomposed vegetable matter and supplanting coarse wild grasses of low food value by the more valuable cultivated grasses are being adopted by owners of private drainage schemes. While these methods and the results are being carefully noted, it is obviously of the utmost importance and in the public interest that practical experiments should be carried out by the department along scientific lines. The application of artificial and barnyard manures on an extensive scale is quite out of the question in newly settled districts and lands requiring such treatment for their reclamation are for the present being passed over, but experiments of the kind recommended may indicate other practical methods of treatment.

Profitable cultivation of the dry belt in the southern parts of the Prairie Provinces is dependent upon irrigation, and although only a small percentage of the area can be irrigated these favoured areas can be made to produce marvellous crops and to pay a good return on the capital invested. There will, however, always be extensive tracts of unreclaimed land in the dry belt because of scanty water supply and the unsuitability of some land for irrigation. The northern parts, on the other hand, enjoying a greater amount of rainfall, will contain only a comparatively small percentage of uncultivable lands after the swamp lands have been drained and the timbered areas cleared. While the actually irrigated lands of the south may be more intensively productive, profitable farming lands will be more widespread and general throughout the north, following in the wake of drainage.

Report of the Acting Commissioner of Irrigation and Chief Engineer, V. Meek, A.M.E.I.C.

This report is a summary of the work accomplished during the year. A more complete account will be found in the original reports of the several engineers which are on file in the offices of the Reclamation Service at Calgary and Ottawa.

WATER ADMINISTRATION

During the year a considerable portion of southern Alberta again suffered from drought, making the fifth year in succession with less than normal rainfall. As a consequence there has been an increasing demand for irrigation and for the construction of works to serve large tracts of land on which dry farming methods have not proved successful. A total of 228 applications for water rights was filed, which is greatly in excess of the record for any previous year. In 1915 as water supply conditions on many streams were reaching a critical stage, steps were taken to revise existing water rights according to a new standard which has been applied to all applications since received. The wisdom of these steps has been fully demonstrated.

Duty of Water.—Formerly it was the custom in granting water rights to allow the full legal duty of eighteen inches, but now many of the grants are made according to the estimate of the quantity which can be applied to beneficial use. Three classes of rights have been established, viz.: those based on depths of eighteen inches (the legal duty), twelve inches, and eight inches respectively. Unless climatic, soil, or storage considerations are such as to make a change advisable, it is usual to allow the full legal duty when water is normally available at all stages of a stream, twelve inches when high and flood waters are available and eight inches for flood rights.

Climatic studies involve the collection of data over a long period of years relating to precipitation for the year, the growing season and each month, as well as information regarding temperatures which are especially valuable as indicating the period during which water can be applied with most beneficial results. These investigations have been greatly facilitated by the publication of a report entitled "The Temperature and Precipitation of Alberta", by A. J. Connor, M.A. (Climatologist), under the direction of Sir Frederic Stupart, Director of the Meteorological Service, Toronto.

Questions relating to texture and composition of the soil must also be carefully considered in determining the duty of water for any project. A soil containing a high percentage of pore space, such as sand, needs more water than a clay soil, but it must be available over a longer period since the application of a large quantity of water at one time to a sandy soil would only result in the rapid percolation of the greater part of it to depths beyond the reach of plant roots. In the heavier clay soils the application of water in large quantities has the tendency of causing alkali to rise and become concentrated at the surface in quantities sufficient to cause injury to growing plants. Where soils of this character are met with, samples are analysed and upon the result of these analyses depends largely the quantity of water that is granted.

Revision of Water Rights.—Many of the older licensed schemes are not using the full quantity of water to which they are entitled. The operation of these schemes is being closely observed each year, so that when water becomes scarce on any stream appropriate steps may be taken to reduce the old grants to conform to the use that is being made of them. Such steps will be taken under the provisions of section 36 of the Irrigation Act.

Experiments at the Brooks Duty of Water Station have proved conclusively that fertile soils will produce their best crops with considerably less water than is

required to produce maximum yields on soils of lower fertility. It is not practicable in most cases in the present stage of irrigation development in Western Canada to take this factor into consideration in determining the duty of water that is to be granted, but irrigators are being urged to study carefully the water requirements of their particular soils so that the best results may be obtained. The tendency in Canada as everywhere that irrigation is practised, is to apply water greatly in excess of the requirements of crops.

Treaty Waters.—Irrigation development which depends upon the use of the St. Mary and Milk rivers and their tributaries has been retarded for a number of years owing to a dispute as to the method of apportioning the waters of these streams between Canada and the United States. The uncertainty regarding this was removed by an order of the International Joint Commission issued on October 4, 1921. This order will, no doubt, result in considerable immediate development of irrigation in both countries.

INSPECTION WORK

Owing to the large increase in the number of applications for water rights, the amount of inspection work required has greatly increased during the past few years. Five engineers are now employed on this work, which covers domestic, municipal, industrial, and irrigation schemes. Inspections of proposed irrigation projects involve the making of surveys and the preparation of plans, which occupies a considerable portion of the time of the inspecting engineers. In one or two districts this year it was found impossible to keep abreast of the new applications and at the same time to make inspections of schemes already in operation. Preference was therefore given to the new applications and for the time being some of the older schemes were neglected. However, by a rearrangement of the work next season it is hoped to provide for the inspection of all schemes. The annual inspection of operating schemes is to the mutual advantage of both the department and the irrigators, the irrigators receiving the benefit of the engineer's advice and co-operation, and the engineers adding to their fund of irrigation engineering and farming knowledge and thus becoming better qualified to judge of the relative value of the various methods of construction and operation.

On many streams all the low water and in some cases all of the high water has been fully appropriated, although the records may show a considerable amount still available during the short period of flood flow. New applications on streams where these conditions obtain are often difficult to deal with as prior licensees are apprehensive of impairment of their rights should such applications be granted. These conditions call for increasing vigilance on the part of the inspecting engineers to ensure that licensees on critical streams confine their diversion operations strictly in accordance with their grants.

Domestic Water Supplies.—The riparian right of a landowner under the existing Canadian law allows the free use of water for domestic and stock-watering purposes, but does not include the right of diversion. If water is to be diverted by means of a dam, flume, pipe, ditch, channel or other means requiring the construction of works, such diversions can only be legalized by securing authority therefor under the Irrigation Act. This also applies to the numerous small reservoirs built by settlers to impound water from the spring run-off.

The inspecting engineers therefore advise the settlers who have constructed such reservoirs to secure rights under the Irrigation Act, and also explain to them that although in most cases the existence of the reservoir may not at the moment interfere with other rights, there is always the possibility of new-comers filing applications for the right to divert and store above or below them; and that if these

applications were granted they might be entirely deprived of their usual supply of stored water and of legal right of obtaining such water in the future. An estimate of the cost of filing such memorials and plans is generally given at this time together with an outline of the precedure to be followed. In most cases the total cost does not exceed $15, i.e., $5 for license and $10 for survey and plan.

The Cypress Hills District.—Little progress was made by the settlers in the development of the smaller irrigation schemes in the eastern portion of this district during the year. The cause of inactivity is not so much lack of interest as scarcity of funds consequent upon a succession of dry years with attendant crop failures and the decrease in the prices of farm products. A party was placed in this district for the purpose of investigating the possibilities of irrigating an area of some 11,000 acres to be known as the Robsart-Vidora irrigation district. Fuller comment on this work is made elsewhere in this report.

In the western portion of this district the settlers now appear to fully realize the advantages to be obtained from irrigation and many new applications for water have been received. Several of these are for the right to divert from coulees which collect the run-off derived from melting snow. Many applications have also been received for water from streams the scanty flow of which has already been fully appropriated. This is particularly true of the southern portion of the district.

Cardston District.—Most of the irrigation projects in this district are situated in the foot-hills region, which is essentially a stock-raising country, and the bulk of the irrigable land is devoted to the growing of fodder crops. Those projects which were in good repair used water to advantage, but the full benefit of irrigation was not obtained by many irrigators, owing to delay in applying water until the season was too far advanced and the creeks had become too low to enable a full supply to be diverted. During recent years the duration of sufficient flow for irrigation has been short and it is important therefore that irrigators should make full use of their ditches early in the season, before the supply gives out.

CANADIAN PACIFIC RAILWAY COMPANY'S IRRIGATION PROJECTS

Western Section.—This section includes about 1,000,000 acres, of which approximately 218,980 are irrigable. An unusually heavy programme of maintenance and betterment was carried out during the year. A large number of structures were entirely rebuilt and a great many others were reconditioned. For the purpose of keeping the ditches cleared out the company has in use in this section six "D.N.R." excavators. These can be operated while the water is running without in any way interfering with the operation of the system. Approximately 90 per cent of the land in this section has been sold and the settlers are now mostly well established with substantial buildings and a fair amount of stock.

A rainfall of 2·18 inches during April created an excellent seed bed and the crops during May were in splendid condition and well advanced. With the prospect of the customary June rains the farmers unfortunately delayed their irrigation work in spite of warnings given through the press and by the officials of the company at Strathmore. There was practically no rainfall during June and hot, drying winds during the middle and towards the end of the month caused great havoc to a very promising crop. The result of this experience should convince the farmers of the need for preparedness and of the desirability of a judicious application of water before the crops show signs of wilting. In this particular area soil moisture tests proved the urgent need for supplementing the soil moisture content and this also was brought to the attention of the water users by the company's officials and through the press, but, with few exceptions, without avail. During the 1921 season some 33,618 acres were irrigated, or 15·3 per cent of the total irrigable area.

Eastern Section.—Settlement in the Eastern Section has been retarded owing somewhat to the generally depressed conditions, but, chiefly to the decline in yields during the past few abnormally dry years and to the drop in the price of wheat; and many farmers have applied to the company to reduce their holdings. Under existing market conditions and the high price of labour the settlers are coming to realize that they cannot operate efficiently large acreages of irrigated land. A system of smaller farms with more intensive cultivation and crop diversification is gradually being evolved. The distributory system was greatly enlarged during the year and extensive repairs to structures were made.

The area actually under irrigation was 88,299 acres as compared with 60,762 acres in 1920. Some 64,768 acres were seeded to wheat which produced 850,842 bushels as compared with 625,589 bushels produced on 37,260 acres in 1920. The low yield in the Eastern Section is attributed to deficient rainfall and also to hot, drying winds occurring in June. Water was not applied in time and the resulting conditions in many cases proved disastrous to the crops.

Lethbridge Section.—The same climatic conditions and the same negligence on the part of irrigators which proved so disastrous in the Western and Eastern Sections produced similar results in the Lethbridge Section. Crops generally were most promising until the end of May, and, in some cases, even to the end of the first week in June. But no rain in appreciable quantities fell until the middle of June and hot winds caused enormous damage everywhere. Many farmers had decided to irrigate immediately after the first hot spell, but the delay caused the crops to be badly burned, thus again proving conclusively that it is fatal to wait until crops show signs of wilting before starting to irrigate. Had the grain fields been fall irrigated, sufficient moisture would have been carried over in the soil to take care of the crop during the first heat wave and thus have given the farmers an opportunity of getting their ditches in shape and the water applied to the fields. The lesson has been a costly one to many, and in order that such a loss should not befall them in the future a great many applied for fall irrigation; in fact, some 22,500 acres of grain land were irrigated during the fall of 1921, or nearly 70 per cent of the whole area likely to be seeded to grain in the spring of 1922. These lands will now have a reserve supply of moisture sufficient to carry the crop along until water can be again applied, which should render them immune from any serious drought conditions which may occur in 1922.

The average value of the crops raised during 1920 on some 79,650 acres in this district was $49.31 per acre, whereas the results for 1921 show only $21.75 per acre over an area of 75,550 acres. The two chief reasons responsible for the great decrease in the per acre return, as compared with the previous year, are: first, the general slump in the prices of farm produce, and, second, the failure to irrigate at the proper time, the reasons for which have been outlined above. During the 1920 season, 6·03 inches of rain fell during the months of April and May, as compared with 2·15 inches during the same months of 1921, which accounts for a great deal of the depreciation in crop yield. The wheat yield, for instance, rated only $11.68 per acre as against $47.25 per acre in 1920.

TABER IRRIGATION DISTRICT

This district is served with water by an extension of the Lethbridge section of the C.P.R. irrigation system. It was the first district to be erected under the provisions of the Irrigation Districts Act of Alberta and its success so far has fully justified the expectations of its creators. The settlers are enthusiastic irrigators. Sixty-one per cent of the total irrigable area (10,352 acres) was supplied with water during this the second year of operation of the project.

In his annual report the secretary of this district has emphasized the value of fall irrigation and has recommended that the future operating policy should be to make regular deliveries of water up to the middle of October. The policy of running the system indiscriminately throughout the fall of the year is considered unsound. The heavy weed jams, which occur in this district from time to time, often displace the smaller structures and necessitate the expenditure of a considerable amount of time and work to get them back into position, and this can usually be done to best advantage in October when the ditches are not in use. The month of September, which should be devoted to fall irrigation where grain crops are grown, was, in fact, a month of low demand, only some 3,700 acre-feet being delivered, whereas during the month of October the quantity increased to some 9,300 acre-feet.

THE SOUTH SASKATCHEWAN DIVERSION PROJECT

In the Annual Reports of the department for 1919-20 and 1920-21 will be found a brief outline of the history of this project and a description of some of its salient features. On July 27, 1921, a vote was taken of the municipal electors in the cities of Regina and Moose Jaw, and the towns, villages, and rural districts along the route of the proposed pipe line, who were to benefit by the scheme.

The voting resulted as follows:—

	For	Against
Regina city	727	97
Moose Jaw city	1,184	286
Country districts including the villages	748	1,449
	2,659	1,832

From this it is apparent that the cities of Regina and Moose Jaw were, by a large majority, in favour of the project, but that the rural district vote was overwhelmingly against it, as submitted. It was necessary for the ultimate economic success of the scheme that a large percentage of the vote should be in the affirmative, in fact, it required a majority in each of the above voting units to warrant proceeding. The vote in the country unit entirely failed to give such a warrant, although the villages were in favour of the scheme and, with the exception of two municipalities, the vote in the country was very small and with small adverse majorities. Some twelve townships out of the total area voted in favour.

Since the vote was taken a number of petitions and resolutions from the villages, towns, and cities have been received and the Water Supply Commission has reported in favour of a suggestion that the two cities take the initiative and form a water district to which may be added, by petition, the villages or such of the country districts as may indicate their desire to do so, in accordance with conditions that would be satisfactory to all. This recommendation was forwarded to the cities by the Government, but on account of the present depressed financial outlook the matter is in abeyance. In spite of the unfavourable financial conditions existing at the moment, interest in the scheme has not waned and those in favour are keenly alive to the necessity of initiating the necessary proceedings along the lines which have been indicated by the commission as soon as times are propitious.

CANADA LAND AND IRRIGATION COMPANY

This company delivered water to 9,400 acres during the growing season and for fall irrigation sufficient to cover about 10 per cent of this area. Water was turned into the system on May 12 and shut off on November 1, 1921. Approximately 92,000 acre-feet were delivered from Bow river into Lake MacGregor reservoir. The avail-

able storage at the end of the irrigation season in this reservoir was 100,000 acre-feet and in the Little Bow reservoir, 13,700 acre-feet.

There was considerable agricultural development during the year in the vicinity of Vauxhall, the efforts of the new settlers in establishing themselves on the lands being attended with marked success. Regulations governing the operation and maintenance of the project were drawn up and have now been approved.

LETHBRIDGE NORTHERN IRRIGATION DISTRICT

All survey and construction work in this district was conducted by the trustees of the district under the general supervision of the Provincial Irrigation Council. The main and branch canals were located in 1920 and the spring of 1921. For purposes of construction the district was divided into five residencies with an engineer in charge of each. The contract for earthwork which was awarded to the lowest bidders, Messrs. Grant, Smith and Company and McDonnell Limited, called for completion of the work by May 1, 1923, at a total cost of $1,660,279.40. The contractors let the greater portion of the work to sub-contractors who again sublet to men with small outfits. The work was carried on vigorously during the summer and late on into the fall. One dragline excavator was operated throughout the winter.

Solid rock in quantities considerably greater than anticipated has been encountered in the inlet to Keho lake, but this is being removed without difficulty, after blasting, and the completion of the project will not be delayed on this account. North of the Oldman flume, gravel was encountered for about two miles and in the Turin district, principally on small laterals, a considerable amount of sand was excavated. The presence of these materials will undoubtedly cause large seepage losses and in some places lining of the canals may be necessary. Fifty-nine per cent of the excavation work was completed in 1921, although operations were not commenced until July. It is anticipated that the whole work will be finished without difficulty in 1922.

Other contracts were awarded as follows:—

Concrete and timber structures.—Messrs. A. G. Creelman and Company, $134,719.95.

Masonry and timber trestle work.—Messrs. A. G. Creelman and Company, $364,619.50.

Timber for small structures.—The Jewell Lumber Company, Limited, $30 to $38.90 per M for timber, 29 cents per linear foot for piling.

Metal flume.—Pacific Sheet Metal Works, Limited.

Oldman river, 3,322 lineal feet at $11.25	$37,372 50
Willow creek, 588 lineal feet at $11.25	6,615 00
Total	$43,987 50

Steel Work.—Dominion Bridge Company, Limited. Oldman and Willow creek crossings, $110,386.

Wood-stave pipe syphon.—The Canadian Pipe Company, Limited.

Rocky coulee, 2,855 lineal feet at $32 15	$91,788 25
Kenex, 930 lineal feet at $32 15	29,899 50
	$121,687 75

UNITED IRRIGATION DISTRICT

Comprised within this district are what were formerly known as United and Lone Rock Irrigation Districts.

Districts	Irrigable	Non-Irrigable
	acres	acres
Former United District....	14,947	26,334·4
" Lone Rock District....	8,177	8,726·5
Present United Irrigation District.....	23,124	35,060·9

The Provincial Government engaged Mr. D. W. Hays as consulting engineer to report upon the project and on the desirability of a government guarantee of the proposed bond issue. A favourable report was given conditional upon there being a guarantee of adequate water rights. This matter was satisfactorily adjusted and authorization for the construction of the works was issued on June 29, 1921. The estimates prepared by the Board of Trustees were then approved by the Irrigation Council, which authorized a loan of $645,000 to cover expenditure in connection with the formation of the district, construction, and interest until the end of one year after the completion of the works.

A by-law was prepared, submitted to the ratepayers of the district on August 24, and passed by a large majority. The district was authorized to borrow $60,000 to cover preliminary and construction costs pending guarantee of the bonds by the Provincial Government. The contract for supervision and engineering was awarded to Mr. D. W. Hays, who had previously reported on the district.

For construction purposes the district adopted the system of letting small contracts to ratepayers in preference to awarding the contract in a lump sum. These contracts were awarded on the following basis: 60 per cent to be paid on monthly estimate, 15 per cent to be paid on satisfactory completion of contract, 25 per cent to be retained and held in trust to apply on assessments to be levied on the lands in respect of the charges due for bonds to be issued by the district.

Conditions in the district are particularly favourable for small contracts, as no expensive machinery is required and a considerable number of ratepayers have had previous experience in the construction of irrigation works. Satisfactory results have been obtained to date and it is anticipated that, under the conditions outlined, this method will prove the most economical.

The expenditure of the district up to December 31, 1921, was as follows:—

Overhead..	$ 3,857 75
Engineering and inspection..	10,943 15
Structures..	2,680 82
Excavation..	25,235 59
General..	724 83
Total..	$43,442 14

The work of surveys and construction will be resumed in the spring of 1922 and an effort made to complete the system during the year.

SOUTH MACLEOD IRRIGATION DISTRICT

By an order dated September 21, 1921, this district was officially declared to be formed. Originally it comprised 61,006.7 acres, but this included School and Crown lands which have been dropped for the present as special legislation must be passed

to make these lands taxable. A further reduction in the area amounting to 7,980.2 acres has been made on account of withdrawals, revision of classifications, and alkali investigations, so that the project now comprises only 49,649 acres.

The plans of the project have been approved and a reservation of 85,190 acre-feet of water from Waterton river has been made. Mr. D. W. Hays, who was employed as consulting engineer by the Provincial Government, has favourably reported upon the undertaking. One objection to this project was the number of holdings too large to be successfully operated as irrigation farms. This objection has been minimized by the withdrawal from the district of most of the large holders of land.

IRRIGATION DEVELOPMENT ASSOCIATION

This association, whose headquarters are located in the Board of Trade Building at Lethbridge, is still actively interested in irrigation development. Any matters which directly affect irrigation interests or the further development of the country centering on Lethbridge, are usually taken up through this medium. The association is doing very useful work in furthering the interests of irrigation in the dry belt. During the past year the chairman (Mr. G. R. Marnoch) and the members of the association appeared before the International Joint Commission at their hearings in Lethbridge in September, 1921, and presented the case of the farmers and business interests in connection with the division of the waters of the St. Mary and Milk rivers. The chairman also attended the hearings of the commission at Chinook, Montana. The association has also taken an active interest in the Waterton lake storage proposals, and in the whole question of the development of storage reservoirs in Alberta.

PROPOSED ROBSART-VIDORA IRRIGATION DISTRICT

Reconnaissance surveys of this project were made during 1920. At that time it was proposed to utilize Cypress lake as a reservoir and the proposed district was known as the "Cypress Lake Irrigation District". As, however, it is now intended to abandon Cypress lake as a reservoir it is considered that a more appropriate name for the district would be the "Robsart-Vidora Irrigation District".

During the season of 1921 a topographical and soil survey of the proposed district was made and detailed surveys of proposed dam sites on the Frenchman river were completed at the following locations: (1) NE. ¼ section 20, township 6, range 24, west of the 3rd meridian. (2) SE. ¼ section 29, township 6, range 24, west of the 3rd meridian, with a view to creating storage of 40,000 acre-feet on the Frenchman river; a detailed survey was also made of the land which will be flooded as a result of the construction of the reservoir and a canal system was projected from this reservoir to the irrigable lands. Detailed plans and cost estimates have since been completed and the following is a summarized estimate of the cost of the proposed development:—

Frenchman River Reservoir—

Expropriation of deeded lands	$ 27,315 00
Main dam	78,081 50
Spillway on main dam	31,654 47
Outlet to Frenchman river	1,987 50
Sucker creek diversion	4,434 00
Road diversion	5,000 00
Dam and headgate at head of main canal	10,064 00
Total cost of reservoir including all above items	$158,536 47
Main canal headgate to and including division gates	61,688 50
East branch main canal and distributaries	39,060 75
West branch main canal and distributaries	53,297 75
Total cost	$312,583 47
Add 10 per cent for contingencies	31,258 35
	$343,841 82

The cost per acre-foot of the 40,000 acre-feet of available storage is ($158,536.47 ÷ 40,000) $3.96. The quantity of water stored per acre to be irrigated is 3.6 acre-feet and the cost of storage per acre irrigated for 11,125 acres is $14.24.

It is difficult to form any definite conclusions as to the suitability of the soil throughout the entire area owing to the nature of the salts present and uncertainty as to their movement after irrigation. It will only be possible to give full authoritative opinion after the soils have been analysed physically and chemically.

LITTLE BOW IRRIGATION DISTRICT

The order forming this district was made on March 5, 1922. Surveys were made and estimates were prepared in 1921. A comprehensive report was submitted to the district in June by their engineer who estimated the cost of the necessary works at $32,930. As the Government of the province has consented to assume half of this cost the capital cost per irrigable acre was at the time estimated at $5.85 and the annual charges per acre for maintenance and operation at 59 cents. Some slight changes are, however, now being made in the irrigable areas and two or three of the small schemes may be eliminated, which may slightly increase the per acre cost.

The project varies considerably from the usual irrigation district scheme in that in this case each individual farmer will construct his own works and purchase and install the necessary pumping equipment. The district as a whole will sell the necessary bonds for the construction of the headworks at High River and the Government of the Province of Alberta will reimburse the district following completion and construction of satisfactory works having sufficient capacity to divert, in addition to the district's own requirements, the fifty cubic feet per second for domestic purposes covered by license now held by the Government of the province. It is understood the arrangement is that half the bond issue will be purchased by the Government from the district, or bonds up to an amount not exceeding $18,000.

The total irrigable area has been estimated at 3,350 acres, but this area may be slightly increased as several riparian owners have recently expressed a wish to be taken into the district. Authorization to construct works under the provisions of the Irrigation Act will be issued as soon as the necessary advertising has been completed. Construction should be completed during the present year.

SURVEYS

North Saskatchewan Project

A general description of this project will be found in the annual report for the year 1919-20. Provision was made in the estimates for the year 1921 for detailed investigation of this project and four parties were placed in the field.

One party was employed on surveys for main canals from the North Saskatchewan, Clearwater, and Red Deer rivers to the proposed Buffalo Lake reservoir. The result of these surveys showed that it is quite feasible to make these diversions and that there are several possible routes from the Red Deer river. Another party was employed to make a reconnaissance of Buffalo lake and the surrounding country with a view to locating a feasible route for a canal from Buffalo lake to the irrigable lands. In addition to this a reconnaissance, without instruments, was made of approximately 500 miles over various possible canal routes. Two levelling parties were employed to run levels along township lines throughout the possible block of land commanded and to gain all possible data in regard to its topography and general suitability for irrigation.

From the information gained in the field tentative studies have been made of the available water supply, probable irrigable areas, required canal capacities and general distribution system. Two alternative schemes have been studied to some extent, one anticipating the use of Buffalo lake as a storage reservoir and the other the use of Sullivan lake. Sullivan lake is a more economical reservoir site than Buffalo lake as a larger area of land can be commanded from it, and the proposed Sullivan lake route to the irrigable land is more direct than the Buffalo lake route. There are a number of other advantages which the Sullivan lake route has over the Buffalo lake route, and it is proposed to investigate it thoroughly during the next field season. Tentative estimates compiled show the following:—

—	Commanded area	Irrigable area
	acres	acres
Under Buffalo lake route	3,003,760	1,564,784
" Sullivan "	3,538,760	1,778,784

The estimated capacity of the proposed canal from the Red Deer river to the storage reservoir (Buffalo lake or Sullivan lake) is about 10,300 cubic feet per second, and of the proposed canal from this reservoir to the irrigable lands about 22,600 cubic feet per second.

With storage on the North Saskatchewan river of approximately 239,000 acre-feet (estimated capacity of reservoirs investigated by the Water Power Branch) and a further storage capacity of approximately 1,000,000 acre-feet at either Buffalo or Sullivan lake, it is estimated that there is sufficient water available from the North Saskatchewan, Clearwater, and Red Deer rivers to provide adequately for all irrigable land under either of the proposed schemes.

During the coming season five parties will be put in the field with a view to gaining sufficient further information to permit of preliminary estimates being prepared. These parties will be made up as follows: two reconnaissance parties of thirteen men each, two levelling parties of thirteen men each, and one reservoir-site party of three men.

Lethbridge Southeast Project

To complete the plane-table surveys of this project commenced in the year 1919, one five-plane-table party was employed during 1921. A small party was also employed to make a classification of all lands in the Alberta Railway and Irrigation Company's block and of certain irrigable lands which had not been plane-tabled in some of the other tracts. Both of these parties were employed only for a portion of the season on this project and were then transferred to other work.

During the winter a survey was made on the ice of that portion of the upper Waterton lake situated in Canada. It was the intention to make a survey of the whole of this lake, but the necessary permission to make such a survey on the United States side was not obtained. This work was done with a view to creating storage capacity of 150,000 acre-feet by the construction of a 50-foot dam at the "Narrows" between the upper and lower Waterton lakes. The total estimated cost to create 150,000 acre-feet storage at this site is $960,383, or $6.40 per acre-foot of storage capacity.

The soil conditions of the land in this project were investigated. Four hundred and forty-four soil groups were analysed and from tests made by the electrolytic bridge the following results were obtained:—

Alkali absent to a depth of at least 5 feet	241	groups
" " above the 3-foot depth	114	"
" " " 1½-foot depth	62	"
" " " ½-foot depth	16	"
Alkali present at all depths to 5 feet	11	"

Further analyses showed that the groups were divided as follows: Suitable soil conditions for irrigation, 423 groups; unsuitable soil condition for irrigation, 21 groups. The district as a whole is comparatively free from alkali.

Some study was given to the storage capacity required on the St. Mary river at the proposed St. Mary Lake reservoir site in the United States Glacier National park. The development of this reservoir was recommended by the International Joint Commission at its session at Ottawa on October 6, 1921. The required capacity indicated from studies made of the stream-flow records of the St. Mary river is 122,000 acre-feet, making the total required capacity of the Sherburn and St. Mary lakes reservoirs 200,000 acre-feet. With this storage capacity in the St. Mary river and a canal from the river with a capacity of 1,200 second-feet Canada could divert during six months of the open-water season a yearly average quantity of 377,694 acre-feet. This, with the additional supply available from the Waterton, Belly, and Milk rivers, would provide adequately for all lands tributary to the St. Mary river in Canada.

The final figures worked up in regard to irrigable areas are as follows:—

Alberta Railway & Irrigation Co. Taber District..	17,000 acres
Alberta Railway & Irrigation Co. under water agreement..	79,671 "
Alberta Railway & Irrigation Co. possible enlargement.. ..	54,046 "
Additional area Lethbridge Southeastern tracts..	336,662 "
Total..	487,379 "

The total area of 487,379 acres is that for which water must be provided and is the basis of the water supply study now being completed. The 17,000 acres in the Taber district, and the 79,671 acres of the Alberta Railway and Irrigation Company are now provided for. The remaining 390,708 acres can be irrigated by the ultimate development of the system, and the estimates of cost submitted were made for the development of this area. The estimated constructional cost to irrigate this area is $40 per acre.

The doubt concerning the possibility of utilizing Waterton lakes for storage purposes makes the ultimate development uncertain, while the enlargement of the main canal of the Alberta Railway and Irrigation Company is an expensive item of cost. Further than this, the cost of irrigating several of the small tracts is high, owing to the long lengths of canal necessary to carry the water to them. It would seem that an economical present development might be one comprising only those tracts which are more accessible to the source of supply.

Taking a broader view, however, and considering future irrigation development, it should be realized that the only chance the comparatively expensive tracts have to receive irrigation water is by their inclusion initially in the larger project, because while these tracts could be served at an initial constructional cost of about $40 per irrigable acre, the cost to serve them at some later stage after the cheaper tracts were developed, would in all probability be twice this amount.

Detailed estimates of cost have been prepared. Topographical and structural maps of twenty-one districts have been completed in connection with this project, showing topography and the design of the distributary system. Profiles of all canals of greater capacity than twenty-five cubic feet per second have been plotted as well as detailed plans of the various sites and larger structures. These plans are filed in the office of the Reclamation Service at Calgary, Alberta.

Retlaw-Lomond District

A general description of the surveys already made of this district was given in the annual report for the year 1920-21. Previous surveys anticipated the extension of the Lethbridge Northern project to serve these lands, but the possibility of irri-

gating them from an enlargement of the Canada Land and Irrigation Company's system has always been recognized. During the year a study was made of the main canal system of the Canada Land and Irrigation Company and an estimate of cost was compiled for an enlargement to serve approximately 100,000 acres in this district, while a cost estimate was also made for a similar enlargement of the Lethbridge Northern system.

The estimated cost of the necessary enlargement of the Canada Land and Irrigation Company's system is approximately $2,496,282 or $25 per acre for the 100,000 acres served thereby. To this is added $9.20 per acre, the estimated cost of the lateral system necessary to serve this area, making a total constructional cost of $34.20 per acre.

The cost of the necessary enlargement of the Lethbridge Northern project, allowing for additional storage of 120,000 acre-feet on the Oldman river, has been estimated at approximately $3,140,590, or $31.40 per acre. To this must be added $9.20 per acre, the estimated cost of the necessary lateral system, making the total constructional cost $40.60 per acre. It is estimated that there is sufficient water available from either the Bow or the Oldman river for the 100,000 acres in the Retlaw-Lomond district, but whereas in very dry years the supply from the Bow river may become critical, an adequate supply from the Oldman river would be assured each year.

From these comparative costs it would appear that the possibilities of shortage of water in Bow river are not considered sufficiently imminent to warrant an added expenditure to the district of $6.40 per acre. These estimates of cost are based upon reconnaissance surveys and should not be considered as final. Further plane-table surveys of the district are to be made during the field season of 1922 to definitely determine the irrigable area and to design and estimate the cost of the canal and lateral systems required.

Proposed North Retlaw District

The lands comprising this district are tributary to the canals of the Canada Land and Irrigation Company, and lie almost immediately north of the company's lateral "A," in township 13, range 17, west of the 4th meridian. Plane-table surveys were made of the lands in this district during the season, and detailed plans and estimates have been completed. The total estimated irrigable area is 2,031 acres and the estimated capital cost is $98,943, or $48.71 per irrigable acre. This scheme is considered feasible and the district is now in process of organization.

Proposed South Retlaw District

The land comprising this district lies in townships 11 to 13, range 17, west of the 4th meridian. The area is divided topographically into two blocks, one lying to the north and the other to the south of the Lomond branch of the Canadian Pacific railway. Plane-table surveys were made of the whole of the area during the season and detailed plans and cost estimates have been completed.

The estimated irrigable area in the northern tract is 3,475·7 acres and in the southern tract 2,217·2 acres. Water can be diverted to these lands from a point on the canal of the Canada Land and Irrigation Company above the drop in section 23, township 13, range 18. The estimated cost of construction of the northern tract is $241,815, or $69.57 per acre, while the cost of construction for the southern tract is $127,944, or $57.70 per acre.

Proposed Tide Lake Project

A reconnaissance was made of certain lands in townships 18 to 21, ranges 8 to 11, in the vicinity of Tide lake, Alberta, with a view to extending the canals of the Canadian Pacific Railway Eastern Section tract to serve them. It was found imprac-

ticable to irrigate these lands by the extension proposed. The possibility of irrigating these lands either by pumping from the river or by an extension of the proposed North Saskatchewan project will be investigated during the coming field season.

Proposed New West Irrigation District

The lands comprising this district lie almost wholly in the west half of township 14, range 16, west of the 4th meridian, and are tributary to and will receive their water supply through the canals of the Canada Land and Irrigation Company. Plane-table surveys were made of this district during the season and detailed plans and cost estimates have been completed. The total estimated irrigable area is 7,629·8 acres. The estimated capital cost of development is $384,959, or $50.45 per irrigable acre. This district is now in process of organization and the plans have been approved by the Minister of the Interior subject to some minor changes which will be made.

Proposed Eyremore District.

Surveys were made of certain lands in townships 16 and 17, ranges 16 and 17, west of the 4th meridian, tributary to the canal system of the Canada Land and Irrigation Company. This district comprises an area of 4,092 irrigable acres of first-class land. Detailed plans and cost estimates have been completed. The estimated capital cost of the development is $61.40 per irrigable acre, which is higher than the interested land owners anticipated, and they are undecided as to the advisability of forming a district.

Proposed River Bow District

This district lies immediately to the south of the Eyremore district. Plane-table surveys were made during the season and detailed plans and cost estimates have been completed. This district, like the Eyremore district, is tributary to the canals of the Canada Land and Irrigation Company and will receive water through that system. The total irrigable area is 5,791·9 acres. The estimated capital cost is $314,357, or $54.27 per irrigable acre. No petitions have yet been presented for the formation of this district and no recommendations in regard to it have been made.

Proposed Pearce Irrigation District

Surveys were made of certain lands in townships 9 and 10, ranges 24 and 25, west of the 4th meridian, in the vicinity of Pearce, Alberta, with a view to irrigating these lands by pumping water either from the Oldman river or from the canal system of the proposed Macleod district. Several different schemes were investigated and comparative cost estimates have been prepared. It was found that the cost of the proposed development is excessive and the scheme is not recommended as feasible.

Proposed Beaver Creek Project

A reconnaissance survey was made of the Tennessee, Hillsboro, Ashdale, and Summerview districts to determine the feasibility of irrigating these lands.

The following conclusions were reached as a result of this survey:—

1 It is not feasible to irrigate lands in the above location from the Oldman river.
2 It is quite feasible to divert water for irrigation from Tennessee and Beaver creeks.
3 There is an area of approximately 9,000 acres tributary to Beaver creek which can be irrigated provided there is sufficient water for this purpose.
4 In order to irrigate any considerable area of land from either of these creeks storage is necessary.

The headwaters of Beaver, Five Mile, and Nine Mile creeks were explored in 1920, but no suitable reservoir sites were found. The only site that was considered worthy of further investigation is located on Five Mile creek, in township 9, range 26, west of the 4th meridian. A complete survey of this site was made, as a result of which it was estimated that 3,500 acre-feet could be stored. A tentative plan was worked up providing for a development of sixty-five quarter-sections, each containing an irrigable area of forty acres or less. In 1921 detailed surveys of the project were made and plans and cost estimates have since been completed showing that approximately 2,600 acres are irrigable at a cost of $55.56 per acre.

Proposed Flood Scheme for Medicine Hat Eastern District

By an order dated February 24, 1921, the Medicine Hat Eastern District was formed. At the request of the Provincial Government, Mr. George G. Anderson, consulting engineer, of Denver, Colorado, made an investigation of the proposed project. His recommendation was that the Government should not undertake to guarantee the bonds of the district on account of inadequate water supply. Later the district employed Mr. D. W. Hays to make an investigation and to modify the plan in such a way as to overcome the objection raised by Mr. Anderson. Mr. Hays submitted his report on July 20, but he was unable to suggest any modified scheme as adequate storage facilities are not available.

This department was requested in November by the district to investigate the feasibility of a scheme using flood water only and the necessary further surveys were made during the following month. A decision as to this scheme has not yet been reached. A comprehensive report on the project will be found in the report of the Reclamation Service for 1921.

Medicine Hat Southern Irrigation District

In the annual report for 1920-21 a general outline of the plan proposed for irrigating this district and an estimate of the cost of the works were given. The district was formally erected on January 11, 1921. Mr. George G. Anderson was engaged by the Provincial Government to report upon the project. He found the water supply to be inadequate and recommended that no assistance in the way of guaranteeing the district bonds be given by the Government. Mr. D. W. Hays was then requested by the district officials to outline a scheme that would be free from the objection raised by Mr. Anderson. His report suggested that the irrigable area be reduced to 3,000 acres and that each unit in the scheme contain eighty irrigable acres. Further field-work was done by this department following the receipt of Mr. Hays' report, as a result of which an estimate of cost of $52.47 per irrigable acre was obtained.

It would appear from a careful study of the records that a sufficient supply of water has been available in seven out of nine years to apply from twelve to eighteen inches. As, however, the records of Paradise creek, one of the sources of supply, have only been taken during one year, it has been deemed advisable to defer making a recommendation with regard to the amended scheme until further records on this creek are obtained.

Proposed Willow Creek Project

Residents in townships 9 and 10, range 27, west of the 4th meridian, petitioned for surveys to determine the feasibility of irrigating land in these townships. A reconnaissance of the area was made and the following conclusions were reached:—

1 The controlling feature is a high cutbank on the west side of Willow creek, just opposite the town of Granum, in section 36, township 10, range 27, and

in order to command the lands under consideration the main canal must be at a sufficiently high elevation to avoid this.

2 The proposed intake must be either on Trout creek or on Willow creek, above the mouth of Trout creek.

3 The lands which will be commanded by such a scheme are in every respect suitable and irrigation would be beneficial.

4 To irrigate lands from either Trout or Willow creeks, storage would be required.

The headwaters of both Trout and Willow creeks were explored and two reservoir sites were located, one on Trout creek in sections 27 and 34, township 11, range 28, and the other on a branch of Willow creek in section 6, township 14, range 29, west of the 4th meridian. Estimates for the project are: Total irrigable area, 4,472 acres; total cost per acre, $58.14; storage capacity, 7,659 acre-feet.

During the period from 1911 to 1919, inclusive, by making use of the reservoir site on Trout creek, it would have been possible to provide an adequate water supply for the irrigable lands with the exception of four months in 1919 and a short period in 1918. From the point of view of water supply, therefore, the project appears feasible.

Proposed Manyberries Creek Reservoir

Early in the year an investigation was made of storage possibilities on Manyberries creek. As a result of this investigation a reservoir site was located in section 34, township 4, range 6, and sections 2, 3, and 11, in township 5, range 6, west of the 4th meridian. Below this reservoir approximately 4,000 acres of hay lands are irrigable. Without storage facilities it is only possible to irrigate a small part of this acreage in the early spring. The effect of providing storage facilities would be not only to increase greatly the irrigable area but also to enhance the yields and make possible the growing of other crops which require frequent applications of water. It was estimated that by providing a reservoir at the site mentioned above, 4,000 acres can be irrigated at a cost of $34.14 per acre.

Proposed Champion Irrigation District

The development of this project is the result of a reconnaissance, made during 1920, of a scheme to supply water for the proposed Retlaw-Lomond district. It was found that the proposed canal from the Highwood river to lake McGregor, which would be necessary to carry the water for the Retlaw-Lomond district, commands a fairly large tract of good land (estimated at 58,000 acres), mostly in townships 14 and 15, ranges 22, 23, 24, 25, and 26, west of the 4th meridian which could be irrigated. A tentative study of the stream-flow records of Highwood river indicated an available water supply for not more than 50,000 acres. Since these lands are, because of their location, more entitled to the Highwood river water than lands in the Retlaw-Lomond district, the scheme has been confined to these lands, now known as the Champion district.

A reconnaissance of the headwaters of the Highwood river was made during 1921 for the purpose of locating a suitable site in which to store the flood waters. A site was located just northwest of the town of High River in what appears to be an old river channel. It is estimated that by constructing a forty or fifty-foot earth dam here thirty thousand to forty thousand acre-feet of water could be stored very cheaply. In conjunction with a known reservoir site at Frankburg lake, in township 16, range 22, just east of the town of High River, it is estimated that sufficient storage (60,000 acre-feet) could be developed. Surveys of this scheme were made, the main canal and some of the distributaries located and section line levels were run over the irrigable areas completed. Complete plane-table surveys will be made in 1922 and estimates and detailed plans will be prepared.

Reservoir Survey at the Junction of Gap and Maple Creeks

A survey was made of a proposed reservoir site at the above location and a plane-table survey was also made of Tenaille or Sixteen Mile lake, it being considered that a very cheap reservoir might be developed here for the purpose of regulating the flow of Maple creek and providing water for schemes already developed or contemplated along the creek towards Bigstick lake. The investigation of this site showed that a reservoir with a capacity of 4,220 acre-feet could be developed at a cost of approximately $5.40 per acre-foot, and that the cost of storage per irrigable acre for 3,000 acres would be approximately $7.60, the total estimate being $22,980.

It is proposed under this scheme to divert the available waters of Maple creek into a natural channel leading to Tenaille or Sixteen Mile lake by means of a head-gate in the right bank of Maple creek. The natural channel will require enlarging and improving. A system of dykes averaging seven feet in height will be required to control the water. The general topographic features are such that a storage reservoir can be developed at reasonable cost.

Survey of Maple Creek Flats

A survey was made of certain lands in the vicinity of the town of Maple Creek, with a view to irrigating them from Maple creek and Gap creek. Canals to serve these lands were located from both of these creeks and a complete topographical survey was made of the lands commanded. Reservoir sites were surveyed on these creeks at points where it was considered that storage might be created. The reservoir sites surveyed are at the following locations: Gap creek, section 27, township 10, range 27, west of the 3rd meridian; Maple creek, section 7, township 10, range 26, west of the 3rd meridian; Downie lake, sections 1, 2, 11, and 12, township 10, range 28, west of the 3rd meridian.

A final study of this development has not yet been completed. There is considerable doubt as to the suitability of these flats for irrigation. The soil consists of a very heavy clay containing some alkali. An investigation of the soil conditions was made during the season but the results are not yet known. There are no serious topographical obstacles to this development, but considerable storage is required for the irrigation of even a comparatively small area.

REPORT ON DUTY OF WATER INVESTIGATIONS FOR 1921—A SUMMARY OF RESULTS OBTAINED AT BROOKS, VAUXHALL, AND COALDALE

The season of 1921 was unfavourable for crops. Seeding was started on April 19, but owing to low temperature in April and May growth was slow. The total precipitation, April to September, inclusive, was 8·26 inches or nearly double that of 1920, which had a total of 4·97 inches. The mean temperature for the period was 56·20°. On the whole the season was backward, owing to a dry spring, low mean temperatures, and a rather cold, wet fall. Drought and hot winds in June did considerable damage to crops, especially where these were insufficiently irrigated.

The following tables show the rotation schedule adopted at Brooks in order to maintain the general fertility of the farm, and that certain crop series may have from year to year, as nearly as may be, the same conditions of soil fertility. For 1921 the duty of water for wheat has been determined under three different conditions of soil fertility: (1) immediately following leguminous crops; (2) following oats, after peas-beets; (3) following barley after oats-potatoes. In a similar manner the duty

of water for oats is found under four different conditions of soil fertility, barley under three, and potatoes under two.

Rotation A Alfalfa five years, potatoes, wheat, flax.
" B Alsike clover four years, roots, oats (*a*), wheat, oats (*b*).
" C Grass three years, potatoes, barley, wheat.
" D Red clover two years, oats, barley.
" E Peas, wheat, oats, barley.

With this schedule it is possible to have in each season grain crops (wheat, oats, or barley) coming immediately after legumes and grasses, second year after legumes, and third year after legumes. This gives an opportunity of securing practical evidence of the phenomena that crops grown on fertile soil require less water to produce a maximum yield than when grown on soils from which, on account of successive cropping without the introduction of organic matter or legumes, the available plant food has been materially reduced.

Wheat.—In rotation E the maximum yield of 42·5 bushels per acre was produced under a total depth of 1·92 feet of water. In rotation C the maximum yield of 34·9 bushels per acre was produced under a total depth of 2·09 feet. In rotation B the maximum yield of 39·0 bushels was produced under a total depth of 2·42 feet.

Summarizing the results from the three wheat series, it is shown that the maximum yields were produced with an average total depth of 2·14 feet of water, of which 0·42 was rainfall. In each series, with the exception of that in rotation B where the maximum yield of 39·0 bushels coincides with the maximum application on plot 69-E, additional irrigations produced a decrease in yield. The dry plots gave some straw but no grain. The maximum yield of the three series, 42·5 bushels per acre, with a total depth of 1·92 feet of water was obtained from land which grew peas in 1920.

Oats.—In rotation D the maximum yield of 143·0 bushels per acre was produced under a total depth of 2·09 feet of water. In rotation B (*a*) the maximum yield of 138·1 bushels per acre was produced under a total depth of 1·92 feet. In rotation E the maximum yield of 91·2 bushels per acre was produced under a total depth of 2·39 feet. In rotation B (*b*) the maximum yield of 84·7 bushels per acre was produced under a total depth of 2·06 feet.

Summarizing the results from the four oats series, it is shown that the maximum yields were produced with an average total depth of 2·11 feet of water, of which 0·42 foot was rainfall in D and B (*a*), and 0.39 foot was rainfall in E and B (*b*). In all series except E excessive irrigation gave decreases in yield. The maximum yield of the four series, 143 bushels per acre, with a total depth of 2·09 feet of water, was obtained from land which grew clover in 1920.

Flax.—The flax plants suffered from wilt and the results from the application of the irrigation schedule were so unreliable that the data were discarded.

Barley.—In rotation E the maximum yield of 49·2 bushels per acre was produced under a total depth of 1·69 feet of water. In rotation D the maximum yield of 60·5 bushels was produced under a depth of 1·69 feet. In rotation C the maximum yield of 52·0 bushels per acre was produced under a total depth of 1·69 feet. Summarizing the results from the three barley series, it is shown that the maximum yields were produced under an average total depth of 1·69 feet of water, of which 0·35 foot was rainfall. The dry plots produced no yield.

Alfalfa Seed Production.—The maximum yield of alfalfa seed, 3·7 bushels per acre, was produced under a total depth of 1·57 feet of water, of which 0·57 was rainfall. This yield was produced from that portion of plot 41-E which was seeded in hills. It was coincident with the maximum depth applied. The dry plot and plot 41-B, which received one 3-inch irrigation, produced no seed.

Where the alfalfa seed was sown in rows, the maximum yield, 2·38 bushels per acre, was produced under a depth of 1·57 feet of water. The dry plot and the plot receiving one irrigation produced no yield. Where the alfalfa was sown in drills, the maximum yield, 3.20 bushels per acre, was produced under a total depth of 1.57 feet of water. The dry plot and the plot which received one irrigation produced no yield.

The season was very unfavourable for the production of alfalfa seed. Late frosts damaged the blossoms, which did not set well. The seed all through the Brooks district germinated very low and had a high percentage of hard seeds.

Peas.—The maximum yield of peas, 60.3 bushels per acre, was produced on plot 20-A under a total depth of 2.47 feet of water. The dry plot produced no yield. Plots 20-B and 20-C which received total depths of 2.81 and 3.14 feet, produced decreasing yields, 58.4 and 57.2 bushels respectively.

Potatoes.—In rotation A the maximum yield, 421 bushels per acre, was produced under a total depth of 1.69 feet of water, of which 0.69 foot was rainfall. The non-irrigated plot produced at the rate of 120 bushels per acre. The crop on this rotation was preceded by clover.

In rotation C the maximum yield, 283 bushels per acre, was produced under a total depth of 1.61 feet of water, of which 0.61 was rainfall. The crop on this rotation was preceded by grass. In both rotations the yields increased with the increase in the depth applied up to the maximum, excepting plots 86-A and 86-B in rotation C.

Summarizing the results of the two potato series, it is shown that the maximum yields were produced under an average depth of 1.65 feet of water of which 0.65 was rainfall.

Alfalfa Hay.—In rotation A 1919 seeding, the maximum yield, 5.57 tons per acre, was produced under a total depth of 3.92 feet of water. The non-irrigated plot produced 0.05 ton per acre. In rotation A, 1920 seeding, the maximum yield, 5.73 tons per acre, was produced under a total depth of 2.42 feet of water. The non-irrigated plot produced 0.42 ton per acre. In rotation B, 1920 seeding, the maximum yield 5.50 tons per acre, was produced under a total depth of 3.42 feet of water. The non-irrigated plot produced 0.10 ton per acre.

Summarizing the results of the three alfalfa series, gives the maximum yields produced under an average depth of 3.25 feet of water. The average maximum yield is 5.60 tons. The average depth used in producing this yield is 2.93 feet.

Grass Hay.—The maximum yield of grass hay, 1.87 tons (3,750 pounds) per acre was produced under a total depth of 1.82 feet of water, of which 0.32 foot was received as rainfall. The dry plot produced one ton per acre.

Golden Bantam Sweet Corn.—The maximum yield of sweet corn, 21.50 tons green weight per acre, was produced under a total depth of 1.07 feet of water, of which 0.57 foot was rainfall. The dry plot produced 7.95 tons per acre.

Dry Land Wheat.—No yield whatever was produced where wheat was grown on non-irrigated land.

Duty of Water Investigation at Vauxhall

Duty of water investigations were commenced in the spring of 1921 on the Kinlock farm of the Canada Land and Irrigation Company, near Vauxhall. The work formerly carried on at Ronalane was abandoned in favour of the Vauxhall location, as the latter farm is situated in the most thickly settled and best farmed area of the Canada Land and Irrigation Company's tract where the results obtained

from irrigation investigations can be observed by a large number of resident farmers. The Kinlock farm has a more uniform soil than the Ronalane farm and is better adapted for experimental work.

The failure of the company's local representative to apply the irrigations according to the arranged schedule makes the data obtained more or less unsatisfactory, as it is not known whether additional irrigations would have increased or decreased the yield, or what influence the irrigations would have had if applied at the right time.

Canada Blue Peas.—The maximum yield, 24.4 bushels per acre, was produced under a total depth of 1.39 feet of water, of which 0.99 foot was received in three 4-inch irrigations.

Marquis Wheat.—The maximum yield, 43.2 bushels per acre, was produced under a total depth of 1.71 feet, of which 1.32 feet were received in four 4-inch irrigations.

Leader Oats.—The maximum yield, 116.4 bushels per acre, was produced under a total depth of 1.72 feet, of which 1.32 feet were received in four 4-inch irrigations.

Bark's Barley.—The maximum yield, 47.6 bushels per acre, was produced under a total depth of 1.71 feet, of which 1.32 feet were received in four 4-inch irrigations.

Gold Coin Potatoes.—The maximum yield, 376 bushels per acre, was produced under a total depth of 1.82 feet, of which 1.25 feet were received in five 3-inch irrigations.

Grimm Alfalfa (Ronalane).—The maximum yield, 3.28 tons per acre, was produced under a total depth of 2.39 feet, of which 2.00 feet were received in four 6-inch irrigations.

Duty of Water, Coaldale, Alberta

Duty of water investigations at Coaldale were commenced on May 9, when soil moisture determinations were made on all the tracts under observation. Water was available to the farmers about May 15. Irrigation of alfalfa began towards the end of the month.

All alfalfa fields except No. 302 received two irrigations. No field yielded more than two cuttings. Tract No. 324 produced the heaviest first cutting, 2·84 tons per acre. Plot 305 produced the heaviest total yield, 4·22 tons per acre for the two cuttings, with a total depth of 2·19 feet of water.

For the thirteen tracts in forage crops during 1921 the average total depth of water received was 1·94 feet, and for the five tracts in grain crops the average was 1·25 feet. For all tracts the average total depth of water received was 1·75 feet. The average total depth of water received for the grain crops for the years 1913 to 1921 was 1·51 feet; the average duty of water for the same period for grains was 0·60 foot. For the alfalfa and grasses the average total depth received for nine years was 2·00 feet, and the average duty 1·22 feet. For all tracts under consideration the average total depth received for the nine-year period was 1.95 feet; the average duty 1·16 feet.

Discussion of Summarized Data

The duty of water for any locality will vary from year to year, principally in accordance with the amount and seasonable distribution of the precipitation, and to a lesser extent as influenced by temperature and the condition of soil and subsoil. Therefore, in order that the water requirements of crops may readily be compared,

from one year to another, or between different localities, it is best to consider that crops annually receive a certain amount of water—precipitation plus irrigation—and designate this amount the "Total Depth Received."

The following table gives a summary of the data collected from the Coaldale, Ronalane, and Brooks stations during the period 1913 to 1921, inclusive. It is not intended to quote these figures as representing the exact depths required for the various crops, but rather as showing the results of our investigations to date. The column headed "Yield" is inserted as a useful index to the crops produced at these three stations. The column headed "Depth" shows in feet the total depth of water received (irrigation plus precipitation).

The *average depth* shown is the average of the depths at the different stations weighted according to the number of years during which records have been taken at each place. The column marked "Average Depth" shows the average for Coaldale, Ronalane, and Brooks.

The data at Coaldale are based on the results gained by average farmers irrigating their own fields and cover a period of eight years; the yields at Coaldale have been omitted because they would not be comparable with the results obtained at the other places.

The results at Ronalane are based on plot work carried on consistently for six years. The results at Brooks are based on accurate and consistent plot work covering a period of four years. For Ronalane and Brooks the figures shown represent the average, at each place, of the total depths of water producing the maximum crop yield in each year. For Coaldale the figures represent the average for ordinary crops in each year.

The mean summer precipitation for the past five dry years 1917 to 1921 inclusive was: Ronalane, 0·49 ft.; Brooks, 0·54 ft.; Coaldale, 0·62 ft.; mean of the three stations, 0·55 ft.

We find, therefore, that even during the past five dry seasons in southern Alberta we have had enough precipitation, when added to the legal duty, to produce the optimum possible duty, viz., rainfall 0·55 feet plus legal duty of water 1·5 feet = 2·05 feet.

Crop	Coaldale	Ronalane		Brooks		Average depth
	Depth	Yield	Depth	Yield	Depth	
Wheat	1·41	45·9	1·91	44·8	2·06	1·72
Oats	1·52	91·4	2·15	100·1	1·90	1·83
Barley	1·61	58·5	1·74	56·4	1·89	1·76
Peas	.....	44·0	2·31	56·2	2·32	2·31
Potatoes	0·83	371·0	2·03	312·0	1·95	1·78
Flax	.....	.....	.....	24·4	1·95	1·95
Alfalfa seed	.....	.....	.....	8·4	1·34	1·34
Alfalfa	2·16	3·32	2·13	5·82	2·96	2·31
Grasses	1·94	.....	.....	1·73	1·72	1·88
Sugar beets	.....	1·35	1·66	16·2	1·82	1·71

The average depth noted in the above table indicates quite clearly the total depths required for the crops listed, when grown in that part of Alberta lying south of township 28, and exclusive of that strip of country lying immediately east of the foothills. Assuming, as in previous reports, that eventually all irrigated farms will be seeded down, one-half to alfalfa and one-half to common grains, we have:—

Average depth for wheat, oats and barley	1·77 feet
Average depth for alfalfa	2·31 feet
Then, total required for entire farm unit	2·04 feet

With legal duty at 1·50 feet, under this condition it would be necessary to rely on the seasonal precipitation to make up the additional 0·50 foot.

A more extended review of this work will be published in the separate annual report of the Reclamation Service for 1921-22.

REPORT OF THE SUPERVISING HYDRAULIC ENGINEER OF THE DRAINAGE DIVISION, J. S. TEMPEST, M.E.I.C.

Following the practice of previous years, this report on drainage operations for the fiscal year ended March 31, 1922, has been prepared in a summarized form, dealing only with matter necessary for record and of interest to the public in general and drainage applicants in particular. Original and detailed reports and data have been filed at Ottawa for reference.

This is the third season since the formation of the Drainage Division and although there has not been time for the completion of many of the projects coming under its purview, highly satisfactory results are to be seen in several private schemes constructed or partly constructed. As a rule, however, the full benefit will not be apparent until sufficient time has elapsed to allow certain classes of land to dry out thoroughly and be prepared for cultivation or the growing of hay. No results of drainage initiated by the Government are yet to be seen, as the construction of Waterhen Lake project, the only one undertaken, will not be completed for another year.

An analysis of the drainage investigations made shows that the numerous projects vary greatly in character, and the amount of time and labour required to complete the reclamation of the land after the construction of the drainage works is dependent upon these characteristics. Practically every project presents a peculiar and distinct problem in itself and greater ingenuity is often required in determining the method of treating the land after drainage than in designing the drainage works. Lands requiring drainage may be divided into four principal classes and a project may include one or more of these classes

(1) *Lands bare of vegetation.*—In order of value and economy of total reclamation those lands that are bare of vegetation, other things being equal, come first. They are to be found in the beds of lakes and sloughs where the depth of water is sufficient to prevent the growth of rushes, flags, and aquatic reeds and grasses. The feasibility of their reclamation is dependent principally upon the cost of the drainage works, for as soon as drained the land is usually ready for seeding to timothy or other grasses without waste of time or any great expenditure of labour. After two or three years as hay meadows such lands are usually suitable for cultivation for ordinary farm crops.

(2) *Wild Hay Lands.*—Next in order of value and economy of reclamation are the native hay lands periodically flooded or permanently in a wet state. The common cause of these wild hay meadows is the building of beaver dams and the submersion of extensive tracts of valley land. The timber is killed by the flooding and in course of time falls and decays. Then follows the filling up of the area with silt and the growth of sub-aquatic plants including water grasses, the latter finally gaining the ascendancy. These meadows are commonly admirably adapted to and susceptible of irrigation or spring flooding after drainage, by the construction of hold-up gates at the outlet.

After the draining of Kleskun lake, in township 73, range 4, west of the 5th meridian, the owners were able to cut each year upwards of 5,000 tons of red-top, reed meadow-grass, and slough grass of fair food value that formerly could not be reached by the mower.

Cygnet lake, near Red Deer, Alberta, was lowered by a drainage ditch dug to facilitate railway construction, resulting in the reclamation or partial reclamation of about 3,000 acres of lake bed and slough. Lands formerly growing a coarse kind of reed meadow-grass and slough grass became available for farming purposes and the growth of a higher class of hay, while the lower portions formerly totally and permanently submerged are now producing coarse wild grasses that can be cut and harvested in dry and normal years.

A portion of Waterhen marsh covered by a luxuriant growth of red-top and slough grass was too wet to be reached by the mower until the water was let off in August, 1921, by the drainage canal constructed by the Dominion Government, thus enabling the settlers to cut a large acreage of hay that otherwise would have been wasted.

The lake beds of these projects commonly are bare of vegetation and belong to the first class of reclamation land, while the shores and the higher parts of the wet area belong to the second class of grass land.

(3) *Flags, Rushes and Floating Bogs.*—Between the two classes of reclaimable lands already described there lies in many projects a third class that presents a more difficult problem. Where the water is too deep to permit the growth of more or less useful wild grass and yet not deep enough to preclude the growth of semi-aquatic plants there is commonly a dense growth of flags and rushes and a condition known as "floating bog." After draining such areas there remains a difficult problem, one which has taxed the ingenuity of pioneers for many years. The dense mass of tangled roots and semi-decomposed vegetable matter retains water like a sponge and perpetuates the growth of worthless vegetation sometimes for years, notwithstanding the proximity of deep and well constructed drainage channels. The trampling of cattle or the lucky advent of a succession of dry years, and possibly the burning off of the dry plants and top part of the roots, expedites final reclamation. Projects consisting largely of lands of this character, although reclaimable, should be undertaken with great caution. The method of their final reclamation is still in the experimental stage, and while it might be good policy to clean up such areas when they form only a small proportion of a project, disappointment and loss might result in undertaking their reclamation where they form the major portion of the project. The character of the vegetation should be carefully studied before any drainage project is undertaken.

(4) Muskegs.—Finally, there is the fourth class of land, presenting the greatest difficulty of all to the final reclamation after drainage, viz., the areas commonly known as "muskegs." These are lands consisting of from one or two feet to eight or ten feet of sphagnum moss, often covered with a growth of decrepit and dwarf spruce and tamarack of no commercial value and usually so sparse and small as to be cleared at very little cost. The deep accumulation of moss is the difficulty overshadowing all others.

Explorations show that muskegs practically hundreds of miles in extent occupy a large portion of the north country, and systematic soundings from the railways to Hudson bay show a depth of moss varying from one to as much as twelve feet, although the latter depth is exceptional. The usual depth is from two to four feet and the underlying soil, although variable, is usually clay and silt suitable for farming land when reclaimed

Muskegs comprising portions of drainage projects, and small muskeg patches on homestead lands, have been successfully reclaimed and converted into good farm land, but no systematic method of treatment after drainage has yet been generally adopted. The subject is still in the experimental stage as far as the deeper muskegs are concerned, but where only two or three feet of moss overlie a suitable subsoil, successful and economical reclamation is fairly assured.

Experiments in the reclamation and cultivation of this class of land are now being carried on at agricultural experiment stations in Canada and the United States. The purpose of these experiments, however, is to ascertain what elements in the shape of fertilizers should be added to the peat soils to make them productive or more productive. Such methods, while interesting to agricultural science and to practical farmers in settled districts where farm land is of high value, are of little practical value in a pioneer country. The reclamation of muskeg and peat lands will of

necessity for the present be confined to such areas as can be reclaimed by drainage and the inexpensive practice of burning or trampling by cattle. Peat soils are commonly deficient in available phosphates and potash and these are left in limited quantities in the ash of plants after burning. Where the subsoil is clay and the peat soil or vegetable matter can be burned so that the plough can reach it, an ideal condition for agriculture is obtained.

Because of the vast areas of this class of land throughout the northern parts of all the provinces, practical experiments in the reclamation of small plots of typical land are advisable in the interest of future settlement. In view, however, of the meagre authentic information regarding the best methods and possibilities of profitable reclamation of the various classes of muskeg lands it is advisable to proceed with caution and not launch into large and costly undertakings until the success in smaller schemes has blazed a sure path to the desired goal.

SURVEYS AND INSPECTIONS, ALBERTA

(1) Rocky Mountain House

This project in townships 36, 37, 38, and 39, ranges 4, 5, 6, and 7, west of the 5th meridian, lies immediately south of the Alberta Central Branch, Canadian Pacific railway, near Rocky Mountain House and consists largely of wet grass lands and muskegs, broken by ridges running northwest to southeast and by numerous islands. Each section of wet land is bordered by a belt of spruce and tamarack, while the higher land is generally timbered with poplar and jack pine. On the higher ground surrounding the main swamp area are numerous hay sloughs which in some sections comprise nearly 50 per cent of the area. The soil is a sandy loam with a clay subsoil. In the open or floating muskeg the surface is from three to ten feet above the clay.

A petition was circulated among the resident owners from which it appears that they are in favour of a drainage project that would benefit their swamp lands, that they believe the swamps, when drained, can be profitably cultivated, that road building would be made possible to and across large areas now inaccessible, and that they are willing to pay the cost of a feasible drainage scheme in the form of taxes assessed against their land according to the provisions of the Drainage Regulations.

The total area of the project is 25,010 acres of which 16,157.1 acres are Crown land and 8,252.9 acres patented or homestead. This area is divided as follows: open muskeg and lake, 15,034.3 acres; timbered muskeg and lake, 8,237.1 acres; islands, 1,738.6 acres. The cost of drainage is estimated as $158,610, or $6.34 per acre.

Lanes Lake

This is in townships 37 and 38, ranges 14 and 15, west of the 4th meridian. Preliminary surveys were made of this project in 1920 and investigations were completed in 1921. The lake is situated about three miles west of the town of Castor, Alberta, on the Canadian Pacific railway. The natural outlet is a small watercourse running to Sullivan lake about seven miles distant. The fall averages about 2.5 feet per mile and to afford the necessary drainage this creek would have to be improved almost its entire length. It is estimated that the run-off from Lanes lake when drained would not materially raise the level of Sullivan lake.

The lake has a normal average depth of about 3.5 to 4 feet of fresh water with considerable areas of permanently wet, low-lying land around its shores, especially at the north and south ends where an abundant crop of good quality of red-top is growing. The soil is sandy loam with clay subsoil of excellent quality for agricultural purposes when drained.

Partial drainage is recommended, that is, to convert the present lake bed of 1,502.7 acres into hay lands and the present hay lands of 703.7 acres into cultivable farm lands. The total area reclaimed would be 2,233.4 acres and the estimated cost $28,000, or an average of $12.54 per acre of the lands benefited. The drainage district contains 58 per cent of Crown lands and 42 per cent alienated lands. Farm land in the district is valued at from $30 to $40 per acre and it is expected that the reclaimed land would be even more valuable. In view of the general desire of the resident owners and the comparatively low cost, construction is strongly recommended.

Chip Lake

A reconnaissance was made of Chip lake with a view to ascertaining the desirability and feasibility of draining it. The lake is situated in townships 53 and 54, ranges 9, 10, and 11, west of the 5th meridian, on the main line of the Canadian National railway, about eighty miles west of Edmonton. At normal level it has an average depth of less than six feet and covers an area of 18,000 acres.

In the district west of the lake is a wet area known as the "Forty Mile Muskeg," covering an area of approximately 40,000 acres. It was thought that the wet condition was caused by backing up of water and that if this were so a comprehensive drainage scheme might be devised for the reclamation of lake and muskeg, making available for agricultural purposes a total area of 90 sq. miles. The most feasible scheme would be the total reclamation of 10,415 acres and the partial reclamation for the growth of hay of 6,472 acres. The cost of such a scheme would be $518,617, or an average of $29 per acre. The lake at present serves no purpose except as a natural but shallow reservoir useful only for its regulating effect on stream flow. Owing to the high estimated cost of drainage of the lake as a separate project and the uncertainty regarding the economical treatment of the surrounding muskeg lands, the reclamation of this project is not recommended at present.

Tomahawk Creek

The lands in this project lie in townships 50, 51, and 52, ranges 5, 6, and 7, west of the 5th meridian, between Low-water lake and the Pembina river, about fifty miles west of Edmonton. A careful examination was made of the whole area and it was found that while small, swampy areas are located throughout practically all of the district, there are no large tracts of wet land requiring and susceptible of drainage at reasonable cost.

Shoal Lake

This shallow body of water is located eighty miles by road in a northwesterly direction from Edmonton, and thirty miles west of the town of Westlock on the Edmonton, Dunvegan and British Columbia railway, in townships 60 and 61, ranges 3 and 4, west of the 5th meridian. At normal water level the submerged area covers some 2,000 acres, but during high water periods an additional 1,000 acres are flooded, as there are expanses of low-lying meadow around the greater portion of the shore line. The average depth of the lake is three feet, and on account of the heavy growth of weeds during low water, it is difficult to row a boat across it. The natural outlet is Shoal creek, a small, debris-choked stream flowing in a valley about twenty feet deep out of the eastern end of the lake. The reconnaissance survey shows that 3,151 acres of wet and submerged lands can be reclaimed for agricultural purposes at a cost of $43,440, or an average of $13.45 per acre.

The resident landowners of the locality, as far as could be learned, are unanimously in favour of drainage, eighteen of them giving written statements to this effect. Several are very enthusiastic in regard to the possible hay-growing value of the land, and are desirous of purchasing a portion should construction be carried out. Taking the project on the whole it appears to be worthy of careful consideration and a detailed location survey is recommended.

Spotted Horse Lake

A reconnaissance survey was made of this project, which is situated forty miles west of Athabaska and about fifteen miles east of the Edmonton, Dunvegan and British Columbia railway, in townships 68 and 69, range 26, west of the 4th meridian. The area draining into Spotted Horse lake is about 164 square miles in extent and consists of large tracts of muskeg and swamp, covered with scattered growths of tamarack, spruce, poplar and birch, with numerous sandy ridges and sandy bottomed muskegs. To the north of the lake the soil is from six inches to a foot in depth and the subsoil is sand and boulders. To the south of the lake the soil is sandy clay with a clay subsoil.

For any other purpose than the production of hay the proposition is not worth while. As a ranching proposition the area might be improved by a number of shallow ditches and by deepening the outlet creek to drain the lake. This would cost approximately $62,000 and would insure abundant supplies of hay and pasturage for a large number of cattle, but the area could never be developed into a district suitable for settlement. This project is not recommended as one to be initiated by the Dominion Government under the provisions of part 4 of the Drainage Regulations.

Manawan Lakes

Manawan lakes are situated in a thriving farming country served by the Edmonton, Dunvegan and British Columbia railway and the Athabaska branch of the Canadian National railways. The centre of the district investigated is about twenty-three miles north of Edmonton. The country is well settled by thrifty farmers who have been in the district for an average of ten years. All the country about the lakes is cultivated and the lakes are a hindrance to its further development. Land in the district is worth from $65 to $75 per acre. Several farmers expressed their desire to purchase the lake bed at $50 per acre should the drainage project materialize. The lakes form a barrier to traffic and seriously increase the length and difficulty of the haul to town from the east and west. The drainage of the lakes would effect a considerable saving in road maintenance and would decrease the cost of hauling grain to the elevators. From every point of view the complete drainage of the lakes would be a great advantage to the whole district and to traffic north from Edmonton through the district. The soil of the lake bed is a good black loam and when drained would be capable of producing crops equal to the best the adjoining district now produces.

The area affected consists of 2,333·6 acres Crown lands and 7,644·4 acres alienated lands. The estimated cost of reclamation is $72,035, or an average of $2.50 per acre. On account of the proportion of Crown lands being less than fifty per cent, this project could not be initiated by the Dominion Government but could be undertaken by the landowners under the provisions of the provincial drainage laws.

SURVEYS AND INSPECTIONS, SASKATCHEWAN AND MANITOBA

Carrot River Triangle

The district known as the Carrot River Triangle comprises an area of about 1,1[illegible] square miles of submerged and periodically flooded lands, forming an irregular triangle between the Saskatchewan and Carrot rivers with the Sipanok channel as its base. About 920 square miles of the triangle lie in the province of Saskatchewan and 180 miles in Manitoba. Several partial investigations and surveys have been made in past years with a view to ascertaining the feasibility of reclaiming this land for agricultural purposes, but owing to the magnitude of the project, the inadequacy of the staff, and the short time spent on the surveys, these merely indicate that drainage appeared to be feasible and that the land when drained would be suitable for

farming. One of the greatest difficulties in the investigation was the practical impossibility of penetrating to and surveying the greater portion of the interior during the open season.

Two parties were detailed to make surveys and investigations of the drier portions along the banks of the Saskatchewan and Carrot rivers during the summer of 1921 and to establish bench-marks and base lines. Two more survey parties were assigned to the work in the late fall and the full force of four parties rushed the investigation of the interior as soon as the freeze-up made it possible to traverse the swamps and muskegs. Three parties continued work until the middle of December, and the fourth party remained until the end of January, 1922. The whole area has, however, not yet been covered and another season's work is required before a final recommendation can be made as to the feasibility and cost of the project.

From the information now available two alternative schemes suggest themselves:—

(A) The reclamation of the whole area by the construction of levees to keep out the flood waters of the Saskatchewan and Carrot rivers and a combined system of gravity drainage and pumping to take care of the run-off due to precipitation.

(B) The reclamation for the present of only the eastern portion of the triangle lying entirely in the province of Manitoba by the construction of levees around the whole of this portion and dealing with the run-off derived from precipitation by a pumping system.

Scheme A involves the reclamation of the entire triangle, consisting of 704,000 acres. The area is largely a mass of shallow lakes and open marshes with higher land along the boundary rivers, with a gradual slope to the east. The soil in the eastern area is an alluvial deposit of clay with from six inches to a foot of black muck, while in the central portion a large part consists of black muck or moss muskeg to a depth of from two to nine feet, with a subsoil of clay. The soils of the western portion have not yet been investigated. The higher land on the Saskatchewan and Carrot rivers, as well as along the interior watercourses, is a clay silt.

Scheme B involves the reclamation of only a part of the triangle, consisting of an area of 113,472 acres. This area is wholly in the province of Manitoba and from general appearances has the most suitable soil for agricultural purposes in the district investigated, and could be put under cultivation with but little preparation after drainage.

Waterhen Lake

The contract for the construction of the Waterhen Lake drainage project, which lies in townships 44, 45, and 45A, ranges 21 and 22, west of the 2nd meridian, was let to the Lount Engineering Company and the work of excavation commenced in May, 1921.

During the season a total of 469,411 cubic yards of earth was excavated, leaving approximately 165,000 cubic yards yet to be dug on the main lake and marsh canals. In addition to this there will be about 12,000 rods of levees to trim, 6,000 rods of catch ditches and a number of small laterals to construct, as may be found necessary after de-watering the lake and canal; also five bridges (two with hold-up gates), a number of culverts and other details to complete the works. The construction of much of this work can only be proceeded with when the lake bed and marsh have dried sufficiently to permit the use of teams.

It is expected that the water of the lake will be let off about midsummer of 1922 and that all the wild hay lands will be dry enough to cut while the grass is in good condition. Last season most of this hay could not be harvested because of wet conditions, except the meadows on the marsh which were de-watered in July.

PRIVATE DRAINAGE PROJECTS

Under the provisions of part 1 of the Drainage Regulations of the Dominion Government and the Reclamation Acts of the provinces of Alberta and Saskatchewan, twenty-five new applications were dealt with, the necessary surveys made and field maps and reports compiled. In addition to which twenty-six inspections of various projects were made and engineering assistance given to the owners of the schemes to ensure maximum results with a minimum amount of work in construction.

The general progress of the various schemes under development has been good, there being no abandoned or unsuccessful schemes reported or observed during the year.

PART V.

DOMINION WATER POWER BRANCH

REPORT OF THE DIRECTOR AND CHIEF ENGINEER OF WATER-POWER, J. B. CHALLIES, C.E., M.E.I.C.

During the past fiscal year the Dominion Water Power Branch completed its tenth year as a distinct branch of the department and the year just closed marks the fifteenth since the administration of water-powers as a distinct resource was first undertaken by the Dominion.

A brief summary of some of the principal features of the year's work follows:—

ORGANIZATION AND SCOPE

The activities of the Dominion Water Power Branch in both their administrative and investigatory phases have been thoroughly maintained and extended during the fiscal year ending March 31, 1922. During this period the Hydrometric Survey work of the department has been consolidated under a Dominion Hydrometric Survey organization extending from coast to coast and made for the first time a complete responsibility of one branch. The field work of the department is based upon and built around this organization through which systematic and continuous stream measurement studies and general field analysis of the country's water-power resources are carried on throughout the Dominion except in the province of Quebec, where similar work is undertaken by the Quebec Streams Commission. In those provinces and territories where the Dominion administers the natural resources, the administrative functions of the branch have been maintained as heretofore.

LAKE OF THE WOODS CONTROL BOARD

Regulation of the levels and outflow of the lake of the Woods was, as in the previous year, a responsibility of the Lake of the Woods Control Board, which is made up as follows:

Mr. W. J. Stewart, Chairman, representing the Dominion.
Mr. J. B. Challies, Secretary, representing the Dominion.
Mr. H. G. Acres, representing Ontario.
Mr. L. V. Rorke, representing Ontario.
Mr. S. S. Scovil, Engineer.

Operations of the board throughout the year have as heretofore involved the continuous collection and study of all hydrological records relating to the watershed. On the whole, excellent results were secured in the past year's regulation; the fluctuation in lake level was maintained within a one-foot range while at the same time all water requirements of power users were fulfilled.

WATER-POWER REGULATIONS AND LEGAL RESEARCH

The translation of foreign acts and regulations has been continued during the year, and a reasonably complete set of the water-power laws now in force in Norway, Sweden, Germany, Austria, Switzerland, France, Italy, Spain, and Portugal, together with the more important regulations, instructions, and forms of concession thereunder has now been secured in English and indexed for comparative study. The French and Italian Regulations of 1920 and their supplementary decrees were translated during the past year.

The revised Dominion Water-power Regulations, pursuant to section 12 of the Dominion Water Power Act, 1919, which have been in the course of preparation for some years, were completed during the year and were approved by the Governor in Council on October 31, 1921 (P.C. 4034). The new regulations have been prepared with two main principles in view, namely, that the water-powers and the lands essential to their development now vested in the Crown should remain vested in the Crown forever, and that these same lands and water-powers should be made available for development under lease on terms sufficiently generous to ensure their development and beneficial use as soon as economically desirable, while at the same time adequately protecting the interests of the public by providing for the control of rates and rentals. These objects are to be attained by issuing licenses for the development of power and leases for the lands occupied for a fixed number of years subject to renewal under the laws and regulations then in force or to the payment of just predetermined compensation if the license terminates without being renewed at the option of the Government.

The Dominion Regulations provide for the issue of two forms of license, the interim and the final license, the former being intended to cover the survey-construction period and the latter the whole period of operation. The interim license, which may be granted at a comparatively early stage of the undertaking, subject to the approval of the director, contains a definite statement that upon the completion of the development ready to deliver power and due compliance with the conditions laid down a final license will be issued and it also embodies the principal conditions of the final license such as the term, rental during the first twenty years, and the quantity of water which may be stored or used. There is one important difference between the licensee's position as the holder of an interim or a final license. In the latter case the license cannot be cancelled for default or even seriously questioned without an order of the Exchequer Court while on the other hand an interim license may be cancelled by the Minister for default without appeal, but only provided that the licensee has expended less than one-quarter of the total amount specified in the license to be so expended.

The rental to be charged for the rights granted is assessed on an output basis, according to a sliding scale by which the rate per horse-power year decreases as the load factor increases, thus providing a direct incentive to improve the load factor with a consequent more economical use of the water leased. The rental may be revised after twenty years and every ten years thereafter, by mutual agreement between the minister and licensee or by impartial board or commission.

Compensation is provided for any property taken over by the Crown either at the end of the term of concession or if the license is terminated prior to that time on a basis of actual investment used and useful to the undertaking. In addition substantial bonuses may be allowed to meet varying conditions of termination and to cover severance losses and other intangible items. The licensee is required to file an annual statement showing renewals, extensions and depreciation. The principle of a fair rate of return on the invested capital is provided for, this rate to be cumulative so that it may be applied to early periods of operation and periods of severe depression.

The regulations deal with a number of other subjects, such as inspection during construction, control of maintenance and operation, steps which may be taken to secure enlarged development, contracts for sale of power, stream regulation and control, and special provisions intended to facilitate the development of small water-powers.

BRITISH COLUMBIA ADMINISTRATION

In the Railway Belt of British Columbia the water and water-powers, although belonging to the Dominion, are administered by the provincial authorities (except in the Dominion parks) under provincial Water Acts, and as the Dominion lands in the Belt are administered by this department it is necessary for close co-operation between the Dominion and provincial officials.

A considerable amount of engineering assistance is rendered the Department of Indian Affairs. One of the most important parts of this work is that in connection with the investigations of water rights appurtenant to the Indian Reserves of the province. Each of the five agencies affected is dealt with separately, that of the Lytton agency having been completed last year, those relating to the Kamloops, Okanagan and Kootenay agencies being completed this year and the Williams Lake agency being now under review.

The examination of water records appurtenant to lands within the Railway Belt has been continued and the work further systematized. Plans are being completed to show the lands affected in each case, and the granting of necessary right of use or occupation of Dominion lands under Water Lands Regulations is proceeding satisfactorily in co-operation with the British Columbia Lands Branch and the Forestry Branch.

WATER RESOURCES INDEX INVENTORY

The Index Inventory system for recording and collating the water resources data of the Dominion has now been in actual use for the past few years and has proved of the greatest utility in the referencing, analysis, standardization, and filing of all data relating to the subject of water resources.

Among the many phases of the work carried on by the branch to which the system has been applied there may be mentioned the complete census of developed water-power and central electric station activities and the analysis of the undeveloped water-power resources, of the stream measurement activities, and of the storage studies carried on throughout the Dominion.

Much of the work has been carried on in co-operation with other organizations, notably the Hydro-Electric Power Commission of Ontario, and the Water Rights Branch of the British Columbia Provincial Government. As a result a very large proportion of the water resources data of the Dominion are now available in standardized and usable form for whatever purpose required. A continuous effort is being made to keep this data authentic and up-to-date.

WATER-POWER RESOURCES OF CANADA

Present activity in hydro-power development warrants a further statement as to the extent of Canada's water-power resources and as to the degree of their utilization. Last year has been one of substantial progress, there having been brought into operation new installation to the extent of 300,000 horse-power, with much new construction actually proceeding and many further enterprises in prospect.

During the past two years there has been under way in the Dominion Water Power Branch a careful reanalysis and computation of the water-power resources of the Dominion. All existing stream flow and power data, available from Federal and provincial sources, have been systematically collated, analysed and co-ordinated with a view to preparing on a uniform basis from coast to coast revised estimates of the power available. While the analysis is not yet fully completed, sufficient progress has been made to warrant the publication of the figures given herein.

While the water-power resources of the country have been exhaustively analyzed in so far as the information available will permit, it should be borne in mind that only very meagre data is to hand in many districts and for many rivers. Moreover the figures given hereunder are based only on those rapids, falls and power sites of which the actual existent drop or head possible for concentration is known, or at least well established, and so may be said to represent the minimum water-power possibilities of the Dominion.

The power estimates have been calculated on a basis of 24-hour power at 80 per cent efficiency, on the basis of "Ordinary Minimum Flow" and "Estimated Flow for Maximum Development." The "Ordinary Minimum Flow" is based on the averages of the minimum flow for the lowest two consecutive seven days' periods in each year over the period for which the records are available. The "Estimated Flow for Maximum Development," is based upon the continuous power indicated by the flow of the stream for six months of the year, it being good commercial practice to develop wheel installation up to that amount on the assumption that deficiencies in power during the remaining six months can be profitably provided from storage or auxiliaries.

The recorded power available throughout the Dominion under conditions of ordinary minimum flow and within the limitations set out is 18,255,000 horse-power. The water-power available under estimated flow for maximum development, i.e., dependable for at least six months of the year, is 32,076,000 horse-power. There are installed to date throughout the Dominion water-wheels and turbines to the extent of 2,763,000 horse-power. Making an allowance of 30 per cent greater machine installation than the six months' flow actual power, which analysis of the existing plants and stream flow records indicates as an average working condition, the present recorded water-power resources of the Dominion will permit of a turbine installation of 41,700,000 horse-power. In other words, the present turbine installation represents only 6·6 per cent of the present recorded water-power resources.

The hydro-electric industry, though naturally affected by the general depression of 1921, suffered no set back, and in fact the horse-power installed during the year, 300,000 horse-power, stamps it as one of the most progressive years in Canadian water-power history.

The 2,763,000 horse-power at present installed throughout the Dominion is apportioned to the following uses:—

2,013,000 horse-power in central electric stations for general distribution purposes, such as, operation of street railways, operation of mines, operation of electro-chemical and electro-metallurgical industries, operation of pulp and paper mills, and for general industrial and domestic use.

476,000 horse-power installed in pulp and paper mills. In addition there is used in the pulp and paper industry 161,000 horse-power purchased from the central electric station installation.

274,000 horse-power installed in industries other than central electric stations and pulp and paper mills.

The total installation for the Dominion averages 315 horse-power per thousand population, a figure which places Canada second only to Norway in the per capita utilization of water-power among the countries of the world.

It is profitable to consider the history of water-power utilization in Canada during the past few years in conjunction with the present activity, with a view to making some reasonable forecast as to its probable future growth. Should the rate of water-wheel installation during the past fifteen years be maintained there will be installed in 1925, 3,360,000 horse-power; in 1930, 4,110,000 horse-power; in 1935, 4,860,000 horse-power, and in 1940, 5,600,000 horse-power. In view of the increasing appreciation of the advantages of hydro-power combined with the fortunate location of ample supplies within easy transmission distance of practically every great industrial centre throughout the Dominion, there is every reason to anticipate that this rate of growth will be accelerated rather than retarded.

In order to ensure the most beneficial utilization of these reserves and to provide intelligent guidance for their development, two essentials are required:—

First.—An accurate knowledge of the location capacity and the engineering and economic possibilities of development of the water-powers of the Dominion, together with their relationship to other natural resources of mine and forest, to industrial centres and opportunities, to transportation systems, rail and navigation, to coal and fuel supplies, to irrigation, drainage and reclamation projects, to alternate sources of power and to market for and uses of power in general.

Second.—A sound governmental policy designed to protect the public from inadvisable and ill-designed power schemes and to provide for reasonable regulation and revision of rates and rentals, and at the same time to ensure satisfactory guarantees for the encouragement of legitimate investment in hydro-power enterprises.

True conservation of our water-power resources, which are inexhaustible through use, lies not in withholding them from development but in their efficient utilization in the public interest, for the economic exploitation of our other natural resources and for the conservation of our exhaustible fuel supplies.

The water-power now developed in Canada represents an investment of $530,000,000. In 1940, should the rate of growth in installation during the past fifteen years be continued, this investment will have grown to over $1,000,000,000. The present development represents an annual equivalent of 20,500,000 tons of coal which, valued at $8 per ton, represents $164,000,000. In the year 1940 these annual figures will, with the foregoing assumptions, have become 42,000,000 tons and $336,000,000. These figures are striking evidence of the outstanding importance and necessity of intelligent administrative policy governing the development of our water-power resources.

CENSUS OF CENTRAL ELECTRIC STATION INDUSTRY

During the year the fourth census of the central electric station industry of Canada was carried to completion by this branch in co-operation with the Dominion Bureau of Statistics, the Hydro-Electric Power Commission of Ontario, the Quebec Streams Commission, the Nova Scotia Power Commission, the New Brunswick Electric Power Commission and other provincial departments.

A detailed analysis of the data gathered has been made and a general census and statistical digest of the industry as at January, 1922, together with the necessary explanatory text, is now being published. Copies of this report may be obtained upon application to the Dominion Bureau of Statistics.

An outstanding feature of the statistics given in the report is the substantial increase which has taken place in the industry despite the widespread financial and industrial depression. In numbers the stations have increased from 895 at the end of 1919 to 819 at the end of 1920, the capital and total primary power increasing

from $416,512,010 and 2,024,918 horse-power to $448,273,642 and 2,033,616 horse-power respectively. Gross earnings have risen from $57,853,392 to $65,705,060, an increase of 13·5 per cent, although this has been offset by an increase in the total operating expenses from $34,341,923 to $45,100,946.

One of the most striking features of the report is the great predominance of water as a source of energy.

Of the total primary power installation of 1,917,811 horse-power in main plants water-power provides the motive force for 1,754,130 horse-power, or 91·4 per cent. While this figure shows the extent to which water-power is used, reference to the provincial totals as set forth in the report shows that all parts of the country are about equally well served and that it is only in the coal areas of the middle west that hydro-electric power is not readily available. Here, because of the ready accessibility of cheap fuel, the absence of water-power has not been a serious drawback to the development of the industry.

The total production of energy for the year amounted to 5,894,867,000 kilowatt hours, of which 5,730,304,000 kilowatt hours or 97·2 per cent, was produced in hydraulic stations. The extent and value of Canada's water-powers is indicated when it is stated that the cost of coal at $8 per ton necessary to produce this amount of electrical energy would amount to practically one hundred and eight millions of dollars.

DOMINION HYDROMETRIC SURVEY

The consolidation in July, 1920, of all the stream measurement work of the Department of the Interior and the formation within the Dominion Water Power Branch of a Dominion Hydrometric Survey has during the past year permitted a fairly complete co-ordination of effort. This central control has removed the possibility of duplication, enabled the institution of more efficient and economic methods of collecting and disseminating hydrometric records, and permitted the publication of the data in conformity with the major drainage basins of the country and its distribution from one central office.

With the exception of certain of the Pacific Coast tributaries, no abnormal flood conditions obtained in the past year. On the other hand, run-off was sub-normal in the southern parts of Alberta and Saskatchewan and also in the Maritime Provinces. Elsewhere in Canada the run-off was average.

Hydrometric Surveys in the Pacific Coast Drainage have been continued under the direction of R. G. Swan, M.E.I.C., District Chief Engineer, at Vancouver, in closest co-operation with the Water Rights Branch of the Provincial Government and with the Department of Indian Affairs and by request, additional stations, essential to irrigation projects, were established in the interior dry belt. Special investigations necessary to a consideration of an international use of boundary rivers were made during the year of Pend-d'Oreille, Kootenay, and Skagit rivers.

In Alberta and Saskatchewan stream measurement work has been carried on under the direction of A. L. Ford, M.E.I.C., District Chief Engineer at Calgary. As a result of deficient precipitation in the southern portion of the two provinces for the fifth consecutive year there has been a most pressing demand for the fullest investigation of water resources for irrigation purposes, necessitating a material increase in field investigations. At the current meter rating station in Calgary the regular and a special meter rating service were maintained. Other special field work included a flood prediction survey in the Bow River valley and an investigation of absorption losses in Lake Newell reservoir.

Under the direction of C. H. Attwood, A.M.E.I.C., District Chief Engineer at Winnipeg, the work in Manitoba and in Ontario west of the Nipigon river has been continued as previously. At the request of the Manitoba Drainage Commission special investigations were made of the flood run-off of many of the small streams

in the southern portion of the province. International problems relating to the use of boundary waters to which attention was given during the year include the Red, Roseau and Pigeon rivers.

Stream measurement work in Ontario has been continued under the direction of S. S. Scovil, M.E.I.C., District Chief Engineer at Ottawa, in close co-operation with the Hydro-Electric Power Commission of Ontario. In the mining and pulp district north and west of North Bay the field work has been extended to meet the demands of prospective power development. A special office and field investigation of the complex hydrology of the upper Niagara river has been in progress.

In New Brunswick, Nova Scotia, and Prince Edward Island, the hydrometric survey has been continued under the direction of K. H. Smith, M.E.I.C., District Chief Engineer at Halifax. In each province the fullest measure of co-operation has been maintained with the provincial authorities. During the year run-off was greatly deficient and invaluable low-flow records were obtained. Certain special studies were also carried on in connection with storage and stream flow regulation.

DOMINION WATER-POWER AND STORAGE SURVEYS

The power and storage investigations carried out by the department during the past year in various parts of the Dominion, under the supervision of Mr. Norman Marr, A.M.E.I.C., were chiefly confined to projects of immediate interest. The office analyses of water-power possibilities throughout the country were also actively carried forward both in the head office and the various field offices.

A study was made of the hydrology of the Columbia river to determine the effects, if any, on Canadian interests of the proposed Kootenay Flats and of the Columbia Basin reclamation projects. The analysis of the water-power resources of British Columbia was actively carried on in co-operation with the Provincial Water Rights Branch.

In the Northwest Territories a reconnaissance power survey was made of Alexandra and Louise falls, on the Hay river, about forty-five miles from its mouth. These powers are of importance with regard to the development of mineral deposits in the vicinity of Great Slave lake.

In Alberta a reconnaissance power survey was made of the Smith rapids, on the Slave river, near the northern boundary of the province. At Bow falls, on the Bow river, in Banff, additional topographic details were secured in connection with the proposed power development by the Dominion Parks Branch. A reconnaissance of the lower Caseade river was made in co-operation with the Calgary Power Company in connection with a proposed power development on that river to augment the capacity of the company's existing plants. Attention was given to applications for power sites on the Crowsnest and Belly rivers. Responsibility for the operation of the Lake Minnewanka storage during the filling season was assumed by the department with very satisfactory results. The systematic analysis of the water-power resources of northern Saskatchewan was continued during the year.

In Manitoba an investigation was made of the possibility of developing power on Birdtail creek, at Birtle, and installing a hydro-electric system in the town. Close co-operation was maintained with the Manitoba Power Commission.

In Ontario a reconnaissance survey of the Winnipeg River watershed was made with reference to the power possibilities of the upper English river above Lost lake and also of its tributary the Sturgeon river. The analysis of the water-power resources of the province was continued in co-operation with the Ontario Hydro-Electric Power Commission.

In Quebec the systematic analysis of the water-power resources, developed and undeveloped, was continued, based on the extensive investigatory work carried out by the Quebec Streams Commission and upon other existing sources of reference both federal and provincial.

In New Brunswick a detailed power survey of some seven miles of the Nepisiquit river was commenced in co-operation with the New Brunswick Electric Power Commission and will be continued during 1922. At the request of municipalities and others who were considering hydro-electric development on a small scale, the following streams were investigated: Upsalquitch river, Caraquette river, Tracadie river, Little Tracadie river, Green river, and Gaspereau river.

In Nova Scotia a detailed power and storage survey of the Bear river was made in co-operation with the Nova Scotia Power Commission. Investigations of the following small streams were also carried out at the request of municipalities and others: Waugh river, Mulgrave brook, Gibraltar Lake stream, Little river, and the Maligeak lake outlets.

In Prince Edward Island at the request of the municipality of Souris an investigation was made of the power possibilities of the Souris river.

FLOODED LAND SURVEYS

Dominion land surveys of overflowed lands as they affect the administration of water-power were carried on during the year under the direction of T. H. Dunn, D.L.S., M.E.I.C.

The location of the boundary of the power reserve on lac du Bonnet was commenced in 1921 at the east boundary of township 17, range 12, E.P.M., and continued westward to range 11 and south to the north boundary of township 15, where closure was made, completing the survey of the power reserve around lac du Bonnet and of the Winnipeg river within township 16.

The survey of the power reserve along the Pinawa channel was recommenced at the north boundary of section 29, township 14, range 12, E.P.M., and extended to the northeast corner of section 11, township 14, range 12, E.P.M. This practically completed the survey of the Pinawa channel.

In sections 3 and 16 of townships 16, range 11, E.P.M., the banks do not rise to elevation 830 and a dyke 2·4 miles long along the Winnipeg River railway will be found necessary to prevent overflow, and improved drainage facilities will have to be provided for in Catfish creek.

A topographical survey of that portion of sections N. ½, 30, 31, 32, and NE. ¼, 33, township 13, range 36; section 5, township 14, range 12, and SE. ¼, section 36, township 13, range 11, south of the Winnipeg river, was made and contours 900 feet, 903 feet, and 905 feet located to determine the most feasible location for a dyke to connect the proposed dam at the upper Seven Sisters power site with the 905-foot contour, section 32, township 13, range 12. The total length of this dyke in addition to the necessary embankment at the dam site will be 1·75 miles.

During the season 68 miles of section line and 46 miles of chained traverse were run, making a total of 114 miles. This necessitated the construction of 108 section corner monuments and the planting of 277 posts at traverse corners. The total number of posts used was 385, of which 362 were long standard and 23 were short standard posts.

PUBLICATIONS

Annual Reports, Water Resources Papers, which embody the results of investigations of the various engineers of the branch, and special pamphlets and bulletins relating to water-powers are prepared for distribution to the public. A list of these may be had upon application.

REPORT

OF THE

DEPARTMENT

OF

IMMIGRATION AND COLONIZATION

FOR THE

FISCAL YEAR ENDED MARCH 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 13—1923]

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

May it Please Your Excellency:

The undersigned has the honour to lay before Your Excellency the report of the transactions of the Department of Immigration and Colonization for the fiscal year ended March 31, 1922.

Respectfully submitted,

CHARLES STEWART,
Acting Minister of Immigration and Colonization.

Ottawa.

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REPORT

OF THE

DEPARTMENT OF IMMIGRATION AND COLONIZATION

1921-22

DEPUTY MINISTER, W. J. BLACK

This, the fifth anual report of the department, shows a decrease of immigration, as compared with that of the preceding year, of 39 per cent.

The following table is a comparative statement of immigrant arrivals from 1881 onward:—

Period	From British Isles	From United States	From other Countries	Totals
Calendar Year 1881	17,033	21,822	9,136	47,991
" 1882	41,283	58,372	12,803	112,458
" 1883	45,439	78,508	9,677	133,624
" 1884	31,787	65,886	6,151	103,824
" 1885	18,591	57,506	3,072	79,169
" 1886	23,507	40,650	4,995	69,152
" 1887	31,104	41,046	12,376	84,526
" 1888	30,852	44,952	12,962	88,766
" 1889	19,384	67,896	4,320	91,600
" 1890	21,793	56,336	2,938	75,067
" 1891	22,042	52,516	7,607	82,165
" 1892	22,636		8,360	30,996
" 1893	20,071		9,562	29,633
" 1894	16,004		4,825	20,829
" 1895	14,956		3,834	18,790
" 1896	12,384		4,451	16,835
" 1897	11,383	2,412	7,921	21,716
" 1898	11,173	9,119	11,608	31,900
" 1899	10,660	11,945	21,938	44,543
Six months ended June 30, 1900	5,141	8,543	10,211	23,895
Fiscal year ended in June 30, 1901	11,810	17,987	19,352	49,149
" " 1902	17,259	26,388	23,732	67,379
" " 1903	41,792	49,473	37,099	128,364
" " 1904	50,374	45,171	34,786	130,331
" " 1905	65,359	43,543	37,364	146,266
" " 1906	86,796	57,796	44,472	189,064
Nine months ended March 31, 1907	55,791	34,659	34,217	124,667
Fiscal year ended March 31, 1908	120,182	58,312	83,975	262,469
" " 1909	52,901	59,832	34,175	146,908
" " 1910	59,790	103,798	45,206	208,794
" " 1911	123,013	121,451	66,620	311,084
" " 1912	138,121	133,710	82,406	354,237
" " 1913	150,542	139,009	112,881	402,432
" " 1914	142,622	107,530	134,726	384,878
" " 1915	43,276	59,779	41,734	144,789
" " 1916	8,664	36,937	2,936	48,537
" " 1917	8,282	61,389	5,703	75,374
" " 1918	3,178	71,314	4,582	79,074
" " 1919	9,914	40,715	7,073	57,702
" " 1920	59,603	49,656	8,077	117,336
" " 1921	74,262	48,059	26,156	148,477
" " 1922	39,020	29,345	21,634	89,999

BRITISH IMMIGRATION

Immigrant arrivals from the United Kingdom, during the fiscal year 1921-22, numbered 39,020, as compared with 74,262 in the preceding year, a decrease of 47 per cent.

IMMIGRATION FROM THE UNITED STATES

During the same year, the total number of immigrants who arrived from the United States was 29,345, as against 48,059 in the previous year; this decrease is 39 per cent.

IMMIGRATION FROM OTHER COUNTRIES

Immigration from other countries, during the same year shows a total of 21,634; in the year 1920-21, total arrivals from this source was 26,156, a decrease of 17 per cent.

TOTAL IMMIGRATION

Immigration from all sources gives a total of 89,999; for the year 1920-21, the entire immigration was 148,477. This decrease is 39 per cent.

IMMIGRATION INSPECTION

Three reports dealing with immigration inspection will be included, and it will be noted that inspectors at border ports have surpassed their record of last year in the rejection of immigrants who failed to meet the requirements of the "Dominion Law and Regulations." In the year 1920-21, 68,190 persons presented themselves for admission to Canada, at border ports, of whom 20,131 were rejected; this number is 30 per cent. During 1921-22, 47,898 persons sought admission, of whom 18,553 were rejected; this is 39 per cent.

JUVENILE IMMIGRATION

The usual report of British immigrant children unaccompanied by parents or guardians will be included, and it is gratifying to note that the careful supervision which always characterized this important branch of immigration is to the same degree maintained.

PUBLICITY

The Publicity Bureau, added to the department in the year 1918-19, with a Director of Publicity, at Ottawa, and a Director, Bureau of Publicity and Information, at Winnipeg, gives us, as in two previous years, two reports which greatly enhance the value of this publication.

ORIENTAL IMMIGRATION

Chinese immigration decreased from 2,435 in 1920-21 to 1,746 last year, 28 per cent.

Japanese immigration decreased, in the same time, from 532 to 471, 11 per cent.

As stated in last year's report, Hindoo immigration to Canada has practically ceased, only 13 having arrived during 1921-22.

REPORT OF THE ASSISTANT DEPUTY MINISTER, W. D. SCOTT

SUMMARY for the Fiscal Year, 1921-22.

Per ocean travel—			
Quebec		40,730	
St. John		8,318	
Halifax		7,119	
Vancouver		1,448	
Victoria		1,020	
North Sydney and Sydney		318	
New York	1,543		
Boston	158	1,701	60,654
From the United States			29,345
Total			89,999

COMPARATIVE STATEMENT.—Immigration to Canada, via Ocean Ports, by months, for the Fiscal Year 1921-22, compared with that of the Fiscal Year 1920-21

	1920-21				1921-22			
	Males	Females	Children	Totals	Males	Females	Children	Totals
April	3,230	2,548	1,185	6,963	4,620	3,432	1,965	10,017
May	5,787	5,661	2,810	14,258	4,143	4,051	2,239	10,433
June	4,790	4,596	2,238	11,624	3,495	3,695	2,001	9,191
July	4,984	4,900	2,476	12,360	2,269	2,472	1,325	6,066
August	3,767	4,104	2,043	9,914	1,817	2,387	1,267	5,471
September	3,973	3,422	1,728	9,123	1,657	2,282	1,320	5,259
October	4,716	3,965	2,226	10,907	1,209	1,851	986	4,046
November	3,327	2,852	1,406	7,585	835	1,330	648	2,813
December	2,637	1,600	836	5,073	672	819	442	1,933
January	1,105	894	503	2,502	550	555	337	1,442
February	1,507	1,212	673	3,392	502	428	175	1,105
March	3,224	2,321	1,172	6,717	1,376	1,031	471	2,878
Totals	43,047	38,075	19,296	100,418	23,145	24,333	13,176	60,654

COMPARATIVE STATEMENT.—Immigration from the United States to Canada, by months, for the Fiscal Year 1921-22, compared with that of the Fiscal Year 1920-21

	1920–21				1921–22			
	Males	Females	Children	Totals	Males	Females	Children	Totals
April	3,556	1,426	1,342	6,324	2,762	1,230	1,043	5,035
May	3,004	1,304	1,045	5,353	1,999	936	775	3,710
June	2,686	1,137	897	4,720	1,539	850	697	3,086
July	2,464	1,050	787	4,301	1,250	637	501	2,388
August	4,025	1,052	761	5,838	1,810	681	525	3,016
September	2,634	903	690	4,227	1,179	560	429	2,168
October	2,136	968	841	3,945	1,020	615	494	2,129
November	1,847	791	624	3,262	757	526	464	1,747
December	1,101	593	416	2,110	611	415	289	1,315
January	879	506	366	1,751	516	289	198	1,003
February	1,061	516	359	1,936	603	292	183	1,078
March	2,368	1,056	868	4,292	1,406	678	586	2,670
Totals	27,761	11,302	8,996	48,059	15,452	7,709	6,184	29,345

COMPARATIVE STATEMENT.—Total Immigration to Canada, by months, for the Fiscal Year 1921-22, compared with that of the Fiscal Year 1920-21

	1920–21				1921–22			
	Males	Females	Children	Totals	Males	Females	Children	Totals
April	6,786	3,974	2,527	13,287	7,382	4,662	3,008	15,052
May	8,791	6,965	3,855	19,611	6,142	4,987	3,014	14,143
June	7,476	5,733	3,135	16,344	5,034	4,545	2,698	12,277
July	7,448	5,950	3,263	16,661	3,519	3,109	1,826	8,454
August	7,792	5,156	2,804	15,752	3,627	3,068	1,792	8,487
September	6,607	4,325	2,418	13,350	2,836	2,842	1,749	7,427
October	6,852	4,933	3,067	14,852	2,229	2,466	1,480	6,175
November	5,174	3,643	2,030	10,847	1,592	1,856	1,112	4,560
December	3,738	2,193	1,252	7,183	1,283	1,234	731	3,248
January	1,984	1,400	869	4,253	1,066	844	535	2,445
February	2,568	1,728	1,032	5,328	1,105	720	358	2,183
March	5,592	3,377	2,040	11,009	2,782	1,709	1,057	5,548
Totals	70,808	49,377	28,292	148,477	38,597	32,042	19,360	89,999

COMPARATIVE STATEMENT.—Total Immigration to Canada, by Ports, for the Fiscal Year 1921-22, compared with that of the Fiscal Year 1920-21

	1920-21				1921-22			
	Males	Females	Children	Totals	Males	Females	Children	Totals
Quebec	27,435	25,784	12,750	65,969	14,360	17,330	9,040	40,730
St. John	7,685	6,032	2,959	16,676	3,603	3,077	1,638	8,318
Halifax	4,337	3,913	2,032	10,282	3,012	2,636	1,471	7,119
Vancouver	1,676	219	320	2,215	849	169	430	1,448
Victoria	573	340	103	1,016	507	330	183	1,020
North Sydney and Sydney	136	396	369	901	72	141	105	318
United States Ports (New York, Boston, etc.)	1,205	1,391	763	3,359	742	650	309	1,701
From the United States	27,761	11,302	8,996	48,059	15,452	7,709	6,184	29,345
Totals	70,808	49,377	28,292	148,477	38,597	32,042	19,360	89,999

SEX, Occupation and Destination of Total Immigrant Arrivals in Canada, for the Fiscal Year ended March 31, 1922

—	Via Ocean Ports	From the United States	Totals
Sex—			
Males	23,145	15,452	38,597
Females	24,333	7,709	32,042
Children	13,176	6,184	19,360
Totals	60,654	29,345	89,999
Trade or Occupation—			
Farmers and Farm Labourers—			
Males	11,556	8,049	19,605
Females	3,600	2,384	5,984
Children	3,185	2,861	6,046
General Labourers—			
Males	2,812	1,802	4,614
Females	844	445	1,289
Children	594	340	934
Mechanics—			
Males	3,623	2,285	5,908
Females	1,886	544	2,430
Children	919	453	1,372
Traders, etc.—			
Males	1,404	1,175	2,579
Females	1,049	489	1,538
Children	428	283	711
Miners—			
Males	494	146	640
Females	101	19	120
Children	109	22	131
Female Servants	6,880	755	7,635
Not Classified—			
Males	3,256	1,995	5,251
Females	9,973	3,073	13,046
Children	7,941	2,225	10,166
Destination—			
Nova Scotia	1,440	430	1,870
New Brunswick	549	661	1,210
Prince Edward Island	44	98	142
Quebec	9,357	4,367	13,724
Ontario	25,741	8,849	34,590
Manitoba	7,188	1,716	8,904
Saskatchewan	5,365	4,529	9,894
Alberta	5,243	6,582	11,825
British Columbia	5,722	2,008	7,730
Yukon Territory	5	105	110

COMPARATIVE STATEMENT.—Total Immigration to Canada, by Nationalities, for the Fiscal Year 1921-22, compared with that of the Fiscal Year 1920-21, showing Increase or Decrease of each Nationality

—	1920-21	1921-22	Increase	Decrease
English	47,687	23,225		24,462
Irish	6,384	3,572		2,812
Scotch	19,248	11,596		7,652
Welsh	943	627		316
Total British	74,262	39,020		35,242
African, South	63	32		31
Albanian	6	6		
Arabian	8	5		3
Argentinian	4			4
Armenian	85	70		15
Australian	90	76		14
Austrian	26	14		12
Belgian	1,645	503		1,142
Bermudian	8	2		6
Bulgarian	4	27	23	
Chinese	2,435	1,746		689
Czecho-Slovak	308	152		156
Dutch	595	183		412
Egyptian	9	2		7
Finnish	1,401	274		1,127
French	861	332		529
German	137	178	41	
Greek	357	209		148
Hebrew—				
Hebrew, N.E.S.	920	2,336	1,416	
" Austrian	1	1		
" Polish	1,600	5,216	3,616	
" Russian	242	851	609	
Hindoo	10	13	3	
Hungarian	23	48	25	
Italian	3,880	2,413		1,467
Jamaican	18	13		5
Japanese	532	471		61
Jugo-Slav	89	180	91	
Lithuanian		19	19	
Luxemburg	16	5		11
Maltese	140	34		106
Mexican	1			1
Negro	144	42		102
Newfoundland	1,042	367		675
New Zealand	40	25		15
Persian	1	9	8	
Polish	4,061	2,707		1,354
Portuguese	4			4
Roumanian	969	759		210
Russian	1,077	321		756
Scandinavian—				
Danish	511	541	30	
Icelandic	50	31		19
Norwegian	429	480	51	
Swedish	715	442		273
Spanish	202	6		196
Swiss	235	187		48
Syrian	443	123		320
Turkish	8	3		5
Ukrainian	491	89		402
U.S.A. Citizens, via ocean ports	110	67		43
West Indian	110	24		86
Total Continental, etc.	26,156	21,634		4,522
From the United States	48,059	29,345		18,714
Total immigration	148,477	89,999		58,478

ARRIVALS AT OCEAN PORTS

During the fiscal year 1921-22, there arrived, via Canadian and United States ocean ports, 125,156 passengers, of whom 12,899 travelled saloon and 112,257 steerage. Included in the steerage passengers were 39,707 returned Canadians and 11,896 tourists, leaving the immigration proper at 60,654 souls, which together with the 29,345 settlers from the United States, brings the total immigration to 89,999, a decrease, as compared with that of the preceding year, of 58,478 persons.

The following further statistical information will be of interest: table I deals with the total arrivals of saloon passengers; table II with the total arrivals of steerage passengers; table III with the monthly arrivals of immigrants; and tables IV and V give summaries of the information obtained from immigrants upon arrival.

TABLE I—Nationality and Sex of Saloon Passengers, arriving at Ocean Ports, during the Fiscal Year ended March 31, 1922

—	Males	Females	Children	Totals
African, South	1			1
Argentinian		1		1
Australian	7	5	3	15
Belgian	2	3	1	6
Bermudian	1	2	4	7
Bulgarian		1		1
Cuban		3		3
Dutch		1		1
French	8	10	1	19
German		1		1
Great Britain and Ireland—				
English	68	82	37	187
Irish	5	7	8	20
Scotch	20	14	4	38
Welsh	1	1		2
Greek	5	13	4	22
Hebrew—				
Hebrew, N.E.S.	1	3	1	5
" Polish	1	1		2
" Russian	1			1
Italian	3	2		5
Jamaican	4	10	6	20
Japanese	2	7	3	12
Jugo-Slav	1			1
Mexican		2		2
Negro		6	2	8
Newfoundland	53	138	79	270
New Zealand	2	2		4
Polish	1	2	1	4
Roumanian		1		1
Russian	2	4	4	10
Scandinavian—				
Danish	1	1		2
Icelandic	1			1
Norwegian	3	1	1	5
Swedish	4	3		7
Spanish	4	1		5
Swiss	1	2		3
Syrian		1	1	2
U.S.A. Citizens	5	11	5	21
West Indian	6	14	4	24
Returned Canadian	3,418	2,567	542	6,527
Tourist	3,045	2,083	505	5,633
Totals	6,677	5,006	1,216	12,899

TABLE II.—Nationality and Sex of Steerage Passengers arriving at Ocean Ports, during the Fiscal Year ended March 31, 1922

—	Males	Females	Children	Totals
African, South	12	9	11	32
Albanian	5	.....	1	6
Arabian	1	3	1	5
Armenian	8	53	9	70
Australian	25	22	29	76
Austrian	2	6	6	14
Belgian	180	199	124	503
Bermudian	.....	2	.....	2
Bulgarian	.....	16	11	27
Chinese	1,125	114	507	1,746
Czecho-Slovak	57	68	27	152
Dutch	107	52	24	183
Egyptian	1	1	.....	2
Finnish	94	136	44	274
French	140	158	34	332
German	40	96	42	178
Great Britain and Ireland—				
English	8,406	9,619	5,200	23,225
Irish	1,482	1,488	602	3,572
Scotch	3,992	5,028	2,576	11,596
Welsh	270	246	111	627
Greek	54	117	38	209
Hebrew—				
Hebrew, N.E.S.	949	860	527	2,336
" Austrian	.....	1	.....	1
" Polish	1,948	1,971	1,297	5,216
" Russian	265	360	226	851
Hindoo	5	4	4	13
Hungarian	13	24	11	48
Italian	1,362	697	354	2,413
Jamaican	3	10	.....	13
Japanese	140	300	31	471
Jugo-Slav	48	77	55	180
Lithuania	11	6	2	19
Luxemburg	2	3	.....	5
Maltese	6	13	15	34
Negro	3	33	6	42
Newfoundland	82	171	114	367
New Zealand	5	11	9	25
Persian	4	3	2	9
Polish	661	1,420	626	2,707
Roumanian	246	330	183	759
Russian	131	120	70	321
Scandinavian—				
Danish	421	85	35	541
Icelandic	18	7	6	31
Norwegian	306	105	69	480
Swedish	297	101	44	442
Spanish	4	2	.....	6
Swiss	113	55	19	187
Syrian	35	60	28	123
Turkish	2	1	.....	3
Ukrainian	37	35	17	89
U.S.A. Citizens	23	22	22	67
West Indian	3	14	7	24
Total immigration	23,145	24,333	13,176	60,654
Returned Canadian	20,368	12,695	6,644	39,707
Tourist	7,993	3,338	565	11,896
Totals	51,506	40,366	20,385	112,257

TABLE III.—Monthly Arrivals of Immigrants, by Nationalities, at Ocean Ports, during the Fiscal Year ended March 31, 1922

—	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	Totals
African, South	6	5	3	4	4	2	2		3		1	2	32
Albanian								6					6
Arabian								3		2			5
Armenian	10	14	5	4	6		6	5	2	6	2	10	70
Australian	1	24		16	3	2	2	9	2	1	5	11	76
Austrian	1		3	4		1						5	14
Belgian	93	142	39	40	35	27	21	38	14	3	5	46	503
Bermudian			2										2
Bulgarian	10	8	3	1		1			3	1			27
Chinese	112	202	211	169	163	210	161	138	137	128	61	54	1,746
Czecho-Slovak	8	24	18	22	5	12	15	8	7	6	9	18	152
Dutch	25	59	21	15	21	12	3	3	3	1	3	17	183
Egyptian					2								2
Finnish	50	32	29	19	21	18	29	15	25	10	9	17	274
French	21	65	38	32	42	30	43	25	7	7	2	20	332
German	4	46	32	19	15	11	19	14	8	5	3	2	178
Great Britain and Ireland—													
English	5,413	4,324	3,418	2,476	1,843	1,622	1,364	772	421	286	367	919	23,225
Irish	898	726	516	311	284	256	223	120	43	23	55	117	3,572
Scotch	2,047	1,932	2,873	900	973	991	551	491	164	151	82	441	11,596
Welsh	118	101	92	85	74	50	38	21	9	7	5	27	627
Greek	9	36	1	46	8	7	21	25	15	23	13	5	209
Hebrew—													
Hebrew, N.E.S.	47	274	102	255	320	332	277	99	235	184	62	149	2,336
" Austrian				1									1
" Polish	317	572	570	559	669	782	404	400	269	262	128	284	5,216
" Russian	43	203	89	91	75	93	97	25	55	40	22	18	851
Hindoo		5	2		1		2					3	13
Hungarian	1	7	6	2	2	5	11	3	4	4		3	48
Italian	113	690	239	149	316	188	215	17	174	8	82	222	2,413
Jamaican	1		3			1	6	2					13
Japanese	94	52	45	52	25	17	18	26	27	24	33	58	471
Jugo-Slav	8	24	18	17	11	19	27	19	17	5	5	10	180
Lithuanian												19	19
Luxemburg								1			3	1	5
Maltese	5	9	2		10	6		2					34
Negro	12	4	1	9	2	7		1	1	3	1	1	42
Newfoundland	45	27	51	35	41	32	47	27	36	11	4	11	367
New Zealand	6	8	2	2			2	2	1		2		25
Persian		2			4	3							9
Polish	76	395	349	376	234	260	175	298	117	136	77	214	2,707
Roumanian	13	110	93	71	65	65	109	100	48	30	13	42	759
Russian	17	71	16	31	25	65	22	30	13	24	1	6	321
Scandinavian—													
Danish	177	88	85	60	40	17	17	5	14	9	6	23	541
Icelandic	1		1	7	3	4	2		1	9		3	31
Norwegian	100	40	75	81	43	39	32	15	15	1	11	28	480
Swedish	63	43	68	53	55	40	27	6	13	13	23	38	442
Spanish	2		2	1							1		6
Swiss	22	39	20	22	12	16	13	16	5		1	21	187
Syrian		6	21	2	12	5	17	23	19	9	5	4	123
Turkish										3			3
Ukrainian	11	4	14	18	2	8	23			5	1	3	89
U.S.A. Citizens	14	12	11	6	5	3	5	1	4	1	1	4	67
West Indian	3	8	2	3				2	2	1	1	2	24
Totals	10,017	10,433	9,191	6,066	5,471	5,259	4,046	2,813	1,933	1,442	1,105	2,878	60,654

TABLE IV.—Monthly Arrivals of Immigrants, by Occupation and Destination, at at Ocean Ports, during the Fiscal Year ended March 31, 1922

—	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Totals
Agriculturists	4,209	3,567	3,171	1,946	1,229	1,003	734	532	355	271	273	1,051	18,341
General labourers	717	809	631	411	442	374	272	81	149	78	101	185	4,250
Mechanics	1,385	1,207	839	480	486	474	366	306	213	193	146	333	6,428
Clerks, traders, etc.	465	463	416	265	299	283	190	126	110	95	58	111	2,881
Miners	153	110	103	58	32	63	62	32	29	17	11	34	704
Female servants	737	1,032	1,054	722	721	762	586	484	218	135	108	321	6,880
Not classified	2,351	3,245	2,977	2,184	2,262	2,300	1,836	1,252	859	653	408	843	21,170
Totals	10,017	10,433	9,191	6,066	5,471	5,259	4,046	2,813	1,933	1,442	1,105	2,878	60,654
Nova Scotia	212	196	180	138	130	128	158	73	86	41	18	80	1,440
New Brunswick	156	54	72	48	31	45	32	11	25	17	26	32	549
Prince Edward Island	6		12	4	2	2	5		3	4	6		44
Quebec	789	1,465	1,127	940	1,154	1,181	857	583	389	309	184	379	9,357
Ontario	4,912	4,677	4,145	2,392	2,055	2,078	1,560	1,117	737	503	433	1,132	25,741
Manitoba	1,230	1,324	1,183	819	661	542	363	296	166	160	107	337	7,188
Saskatchewan	936	898	759	614	418	427	327	238	154	149	76	369	5,365
Alberta	922	854	836	538	510	415	364	211	163	92	78	260	5,243
British Columbia	854	961	877	573	510	441	380	284	210	167	177	288	5,722
Yukon Territory		4										1	5
Totals	10,017	10,433	9,191	6,066	5,471	5,259	4,046	2,813	1,933	1,442	1,105	2,878	60,654

TABLE V.—Nationality, Sex, Occupation and Destination of Immigrant Arrivals,

	Sex				Trade or Farmers and Farm labourers			General Labourers			Mechanics		
	Males	Females	Children	Totals	Males	Females	Children	Males	Females	Children	Males	Females	Children
African, South	12	9	11	32	5	1					2		
Albanian	5	1	6					3					
Arabian	3	1	5										
Armenian	8	53	9	70				2	1		4	7	1
Australian	25	22	29	76	10	2	11	2			7		2
Austrian	2	6	6	14	1	2	4						
Belgian	180	199	124	503	122	67	49	11	2	2	13	10	1
Bermudian		2		2									
Bulgarian		16	11	27		1	2		1				
Chinese	1,125	114	507	1,746	1			10					
Czecho-Slovak	57	68	27	152	37	24	8	11	1	2	4	2	
Dutch	107	52	24	183	88	11	11	2			6	2	
Egyptian	1	1		2	1	1							
Finnish	94	136	44	274	66	9	14	15	2	4	7	4	1
French	140	158	34	332	74	31	9	9	4	1	13	11	2
German	40	96	42	178	14	6	3	9	3	5	6	3	
Great Britain and Ireland													
English	8,406	9,619	5,200	23,225	5,012	1,487	1,638	582	202	177	1,370	782	104
Irish	1,482	1,488	602	3,572	1,012	194	227	122	19	9	153	83	22
Scotch	3,992	5,028	2,576	11,596	1,914	517	531	378	109	111	912	399	278
Welsh	270	246	111	627	159	29	23	13	2	5	29	11	7
Greek	54	117	38	209	4	1		15	1	1	6		
Hebrew—													
Hebrew, N.E.S.	949	860	527	2,336	203	74	51	225	81	69	185	114	49
" Austrian	1			1				1					
" Polish	1,948	1,971	1,297	5,216	485	138	88	333	70	59	579	328	104
" Russian	265	360	226	851	67	38	33	57	21	17	55	35	16
Hindoo	5	4	4	13	1			1					
Hungarian	13	24	11	48	6	6	3	3	2	1	1	1	1
Italian	1,362	697	354	2,413	379	29	12	717	133	75	140	19	2
Jamaican	3	10		13	1							1	
Japanese	140	300	31	471	66	49	4	23	97	7	6	23	3
Jugo-Slav	48	77	55	180	32	22	23	9	1			2	
Lithuanian	11	6	2	19	5	3	2	5	2				
Luxemburg	2	3		5	2	2						1	
Maltese	6	13	15	34				1			1		
Negro	3	33	6	42				1			1	1	
Newfoundland	82	171	114	367	7	4	3	20	11	20	23	2	7
New Zealand	5	11	9	25	4	4	1						
Persian	4	3	2	9	2	1	1						
Polish	661	1,420	626	2,707	488	531	198	89	57	11	30	20	7
Roumanian	246	330	183	759	160	141	88	39	14	10	22	7	1
Russian	131	120	70	321	88	45	35	19	4	6	10	8	6
Scandinavian—													
Danish	421	85	35	541	370	23	20	29	1		7	1	
Icelandic	18	7	6	31	13	4	3	2					
Norwegian	306	105	69	480	269	34	31	15	1		8	2	1
Swedish	297	101	44	442	263	27	22	22	1	2	7	2	2
Spanish	4	2		6				1			1		
Swiss	113	55	19	187	76	15	12	7			7		
Syrian	35	60	28	123	14	8	6				3	1	
Turkish	2	1		3									
Ukrainian	37	35	17	89	26	15	11	6	1		1		
U.S.A. Citizens	23	22	22	67	8	3	4	3			4	4	2
West Indian	3	14	7	24	1	1	4						
Totals	23,145	24,333	13,176	60,654	11,556	3,600	3,185	2,812	844	594	3,623	1886	949

at Ocean Ports, during the Fiscal Year ended March 31, 1922

Occupation										Destination											
Clerks, Traders, etc.			Miners				Not Classified														
Males	Females	Children	Males	Females	Children	Female Servants	Males	Females	Children	Nova Scotia	New Brunswick	Prince Edward Island	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Territory
1			1	1			3	7	8				5	10	6	2	2	7	
							5		1				6						
1	2							1	1				5						
						2	2	43	8				6	57	4	3			
1	1					3	5	16	16	1			6	15	3	5	9	37	
						1	1	3	2		1				4	9			
5	3	5	7	2		22	22	86	67	8			89	179	112	56	44	15	
						2								2					
								14	9					19		7	1		
208	48	65	1				905	66	442	12	7		138	260	63	114	157	995	
	1		1			16	4	24	17	1	4		12	49	19	27	27	13	
5	4	4				6	6	29	9		3		7	57	37	24	38	17	
													2						
	1		2			81	4	39	25				22	202	5	7	12	26	
11	3					22	33	87	22	13	2		119	38	47	60	36	17	
	1		1			22	10	61	34	3			20	19	33	59	34	1	
370	408	86	209	48	54	2,597	872	1,155	2,841	644	276	17	2,188	11,350	2,406	2,109	2,037	2,198	
82	60	13	11	2		595	102	535	331	31	40	3	387	1,824	482	318	263	221	3
215	252	47	196	30	41	1,818	377	1,903	1,568	177	85	17	1,308	5,550	1,311	938	1,143	1,067	
12	9	1	30	11	11	54	27	139	64	11	11		53	223	69	74	116	70	
5						35	24	80	37	4			51	123	5	4	6	16	
180	96	94				172	156	323	264	27	13		1,263	698	233	61	28	13	
													1						
180	88	68	1			519	370	828	978	99	50		1,985	2,015	787	158	90	32	
14	25	20				77	42	164	140	17	9		357	194	225	37	8	4	
							3	4	4									13	
						4	3	11	6				2	12		28	6		
24	6	6	30	2	3	127	72	381	256	58	7		462	1,355	52	30	201	248	
						7	2	2		1			10	2					
11	19	2		2		5	34	105	15					4		4	10	452	1
			4			22	3	30	32	1			6	100	14	34	18	7	
			1					1		1			16			1		1	
													3			1	1		
						2	4	11	15	1			5	28					
1	1					25		6	6	7	1		14	20					
3			5	1		71	24	82	84	263	8		34	51		1	6	4	
		1				1	1	6	7			2		7	1		3	12	
							2	2	1					7		2			
5	7	1				359	49	446	409	35	8		239	756	778	488	373	30	
11	6	3	1	1		64	13	97	81	3			175	159	68	251	100	3	
1			1	1		33	12	29	23	2	3		126	28	46	87	25	6	
4						30	11	30	15	12	11		48	75	151	65	159	20	
						1	3	2	3						27	4			
2			1			35	10	30	37	1	1		10	27	68	152	140	80	1
3						45	2	26	18	2	2		24	88	74	86	102	64	
1							1	2					4	2					
9	2					20	14	18	7		3		45	30	23	30	28	19	
4	2	6				14	14	35	16	2	2	5	73	27	2	9		1	
							2	1						3					
1	1	2				12		6	4				9	23	29	14	13	1	
2	1					5	6	9	16	1	1		10	30	4	6	7	8	
1	2	1				7	1	4	2	2	1		10	7				4	
1,404	1,049	428	491	101	109	6,880	3,256	9,973	7,941	1,440	549	44	9,357	25,741	7,188	5,365	5,243	5,722	5

STATEMENT of Rejections, by Causes and Nationalities, at Ocean Ports, from December, 1902, to March 31, 1922

—	Fiscal Year																			
	1902-1903	1903-1904	1904-1905	1905-1906	1906-1907[1]	1907-1908	1908-1909	1909-1910	1910-1911	1911-1912	1912-1913	1913-1914	1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920	1920-1921	1921-1922	Totals
By Causes																					
Accompanying patients	16	.....	13	39	21	58	60	42	104	53	28	76	58	4	8	1	.....	9	13	39	642
Alien enemies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	5	9
Bad character	.....	.....	12	1	61	181	87	98	122	112	80	102	56	17	4	11	2	1	9	2	958
Contract labour	.....	.....	.....	.....	.....	23	.....	33	28	3	.....	.....	.....	.....	.....	.....	4	1	.....	.....	92
Criminality	.....	.....	1	6	7	17	6	9	10	5	4	3	2	4	.....	1	1	3	14	6	99
Head tax	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Lack of funds	.....	.....	.....	1	.....	85	67	34	1,038	246	204	994	452	38	55	19	10	28	255	292	3,818
Likely public charges	.....	49	56	73	57	292	66	681	274	164	56	76	71	55	55	19	27	125	236	208	2,640
Medical causes	257	225	529	404	264	513	216	585	585	256	328	398	319	34	30	12	19	21	99	60	5,154
Not complying with regulations	.....	.....	.....	.....	30	3	7	33	48	119	55	178	40	11	22	8	7	474	291	278	1,604
Previously rejected	.....	.....	.....	.....	.....	.....	.....	.....	1	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
Unskilled labourers for B.C.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	193	225
Totals	273	274	611	524	440	1,172	509	1,515	2,210	972	756	1,827	998	163	174	71	70	662	953	1,083	15,257
By Nationalities																					
British	2	8	13	76	61	130	146	183	233	227	161	171	169	42	28	5	11	108	193	153	2,120
American	.....	.....	27	17	17	63	2	13	20	2	14	12	29	28	15	11	9	8	11	7	305
Other countries	271	266	571	431	362	979	361	1,319	1,957	743	581	1,644	800	93	131	55	50	546	749	923	12,832
Totals	273	274	611	524	440	1,172	509	1,515	2,210	972	756	1,827	998	163	174	71	70	662	953	1,083	15,257

[1]Nine months.

STATEMENT of Deportations, after having been admitted, by Causes, Nationalities, and Provinces, from December, 1902, to March 31, 1922

—	Fiscal Year																			
	1902-1903	1903-1904	1904-1905	1905-1906	1906-1907[1]	1907-1908	1908-1909	1909-1910	1910-1911	1911-1912	1912-1913	1913-1914	1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920	1920-1921	1921-1922	Totals
Accompanying deports	4	3	1	4	35	26	21	....	18	17	16	10	34	5	9	39	10	18	37	48	355
Bad character	....	1	....	4	....	30	71	44	71	120	165	159	128	68	60	84	35	22	52	105	1,219
Criminality	....	1	8	1	12	68	115	130	172	242	334	376	404	329	277	274	236	334	586	630	4,529
Medical causes	49	61	58	110	126	392	467	212	222	229	370	570	379	206	98	39	70	123	133	313	4,227
Not complying with regulations	....	....	....	....	....	....	....	....	12	8	4	4	....	....	....	....	....	....	....	....	28
Public charges	14	19	19	18	28	309	1,074	348	289	343	392	715	789	635	161	91	103	158	236	950	6,691
Totals	67	85	86	137	201	825	1,748	734	784	959	1,281	1,834	1,734	1,243	605	527	454	655	1,044	2,046	17,049
By Nationalities																					
British	50	69	74	112	168	607	1,235	486	458	540	559	952	877	602	186	36	99	184	295	1,107	8,096
American	....	....	....	2	8	37	98	119	169	256	377	405	461	437	324	407	279	392	616	725	5,112
Other countries	17	16	12	23	25	181	415	129	157	163	345	477	396	204	95	84	76	79	133	214	3,241
Totals	67	85	86	137	201	825	1,748	734	784	959	1,281	1,834	1,734	1,243	605	527	454	655	1,044	2,046	17,049
By Provinces																					
Maritime Provinces	....	2	....	3	2	14	19	24	25	13	45	45	55	48	19	18	22	22	52	74	502
Quebec	18	16	11	27	41	136	684	97	165	186	208	371	397	236	108	123	96	118	174	297	3,509
Ontario	3	3	8	19	79	383	907	378	349	348	419	574	543	461	233	166	162	247	375	895	6,552
Manitoba	....	....	....	....	66	226	48	97	121	174	230	334	199	143	40	59	21	40	66	228	1,493
Saskatchewan	46	64	67	88	3	19	27	19	23	35	44	59	85	96	54	37	31	30	52	115	4,375
Alberta	....	....	....	....	4	24	14	63	55	95	131	164	224	114	34	30	19	57	88	173	1,493
British Columbia	....	....	....	....	5	23	49	56	46	108	204	287	228	145	116	91	103	141	237	264	2,103
Yukon Territory	....	....	....	....	1	....	....	....	....	....	....	....	3	....	1	3	....	....	....	....	8
Totals	67	85	86	137	201	825	1,748	734	784	959	1,281	1,834	1,734	1,243	605	527	454	655	1,044	2,046	17,049

[1]Nine months.

REPORT OF THE CHIEF CONTROLLER OF CHINESE IMMIGRATION, W. D. SCOTT

During the fiscal year ended March 31, 1922, 1,746 persons of Chinese origin entered Canada, of whom 287 were admitted as exempt from head tax and 1,459 upon payment of $500 each. The first head tax of $50 was imposed upon Chinese in 1885; this amount was increased to $100 on January 1, 1901, and to $500 on January 1, 1904.

For the purpose of comparison, the following table relating to Chinese immigration is given:—

Fiscal Years	Exempts	Paying Tax	Percentage of total arrivals admitted exempt	Registered for leave	Total revenue
					$ cts.
1912-13	367	7,078	4·93	3,742	3,549,242 00
1913-14	238	5,274	4·32	4,143	2,644,593 00
1914-15	103	1,155	8·19	4,373	588,124 00
1915-16	68	20	77·27	4,064	19,389 00
1916-17	121	272	30·79	3,312	140,487 00
1917-18	119	650	15·47	2,907	336,757 00
1918-19	267	4,066	6·16	3,244	2,069,669 00
1919-20	181	363	33·27	5,529	538,479 00
1920-21	1,550	885	63·66	6,807	474,332 00
1921-22	287	1,459	16·44	7,532	743,032 00
Totals	3,301	21,222	13·46	45,653	11,104,104 00

The average of Chinese immigration, per annum, during the ten years included in the above table, was 2,452. For the year 1921-22, the number of arrivals was 1,746, a decrease as compared with this average of 29 per cent. The revenue derived from Chinese immigration, during the period included in the table, amounted, on an average, to $1,110,410 per annum.

REPORT OF THE SUPERINTENDENT OF EMIGRATION FOR CANADA IN LONDON, J. OBED SMITH

The staff of the department in Europe have continued to carry out the policy of the Canadian Government, that, so far as is humanly possible, the unfit should be barred from admission to the Dominion. The operation and interpretation of the increased restrictions necessary to achieve this object make the duties of the emigration staff multifarious in character, and concern many thousands of people of varied nationalities, creeds, and all conditions of life.

EMIGRATION

It will be readily observed that there are two distinct streams of humanity passing towards Canada as emigrants, and while these streams are largely separate at their source on this side of the Atlantic, they meet and are dealt with as one on arrival at the various ports of landing in the Dominion. The movement originally started by Canada, and continued by tens of thousands of people who reached Canada as immigrants, now flows as a stream of emigration which will continue from year to year unless some definite and complete restriction is placed on arrivals at Cana-

dian ports. This movement is partly the result of invitations by relatives and friends already in Canada, and it is the duty—greatly emphasized during the past year—of emigration officials to see that these newcomers, even going to friends, and with assured homes and employment, measure up to the standard of quality Canada requires. Undesirables have to be kept back even in this stream of emigration, and as every phase of life has to be considered, the inquiries to be answered are multifarious and ubiquitous, and each case dealt with separately.

The other movement is the direct result of publicity of every kind and an active propaganda. This is the stream which has stopped and must be restarted even at very considerable expense.

The general and main policy of emigration has always been to secure farmers and workers on the land, and female household workers. These are the classes Canada calls for, and all others must be dealt with upon individual merit. We have always needed delegates, both men and women, to augment our regular expert staff during the fall and winter seasons, in order to tell at first hand their experiences and success in Canada. For the same reason the necessity arises that our own agents should continue to visit the Dominion from time to time, and personally receive up-to-date information concerning a country whose development is one continual surprise.

From Great Britain the bulk of the emigration has gone during the past year, as in previous years, but unemployment conditions in Canada have obliged us to reject many who would have been acceptable in other years. Many thousands more than have left for Canada have desired to enter the Dominion during the past year. The Mother Land will be for all time the true source of desirable people of British birth and sentiment.

From Ireland the movement to Canada, as to elsewhere, has been seriously restricted by the unhappy conditions existing there. The movement from southern Ireland largely ceased, and those who were determined to leave did in all probability leave by way of Belfast. For this reason the figures of emigration from Ireland to Canada are much lower than they would otherwise be.

Emigration from Northern Europe.—This movement to Canada has not yet been reorganized since the Great War. We have no Agencies there now, and little, therefore, can be done to secure these desirable people for the Dominion. So many were called back to their native lands during the war, and so many have remained behind, that there is undoubtedly an immense field for successful operation to Canada's benefit.

Emigration from elsewhere means the movement of many thousands of cosmopolitan and alien nationalities, for the most part not of the class Canada calls for. This emigration has been discouraged, and wherever possible will be checked at its source. There is no country in Europe or Asia that has not some people who have been unsuccessfully trying to get into Canada.

By no means do all intending emigrants come within our purview or the official sphere of influence, hence the cordial co-operation of reliable authorized booking agents is desirable. A booking agent may not be the first to interest an intending emigrant for Canada, but he is assuredly the last as he sells him the passage ticket.

IMMIGRATION

This is correlative—although taking place in Canada—with all our movement on this side. Conditions of inspection, reception and settlement have an immediate result on the immigration movement from time to time. The lack of the Employment

Service of our own department, which worked admirably for so many years, has been a never-failing source of complaint, contributing to failure and not to success. The fixing of normal landing money at the high rate of $250 for classes other than agriculturists and domestics, while necessary in times of great unemployment, should not be considered as all important. A very large portion of Canada's population (born outside of the Dominion) in all walks in life did not have anything like this sum on landing, and at the earliest possible moment this preventative restriction should be materially relaxed. In addition, there should be hearty co-operation with every society and institute and individual in Canada who have sympathy with newcomers, and who would thus patriotically serve Canada's interests. A real and sustaining welcome should await every desirable immigrant landing in Canada.

COLONIZATION

This means not only settlement of farmers and workers on the land, but also the placing of desirable women in desirable households and elsewhere. Such should not be allowed to fail for lack of financial assistance and supervision, including the excellent efforts of the Home Section of the Land Settlement Board. True colonization means, in addition to a suitable reception, an amount of after-care which gives the newcomer that little bit of extra attention which so often stimulates courage and spells success. Canada asks nothing from her immigrants except that they shall succeed and be contented citizens of a great commonwealth.

EMIGRATION AGENCIES IN THE BRITISH ISLES

All of the eleven agencies outside London have been fully engaged. During the past year there has come into the North Atlantic service an additional number of excellent passenger steamers, and a revision of the sailing ports has already made Southampton a very close rival of London and Liverpool, so that the rearrangement of the southern areas for emigration purposes for a new agency at Southampton. All British emigrants sailing from these shores pass inspection by our own agents at the various ports of embarkation, and there is scarcely, if ever, a sailing on which rejections do not take place at the suggestion of our own officers.

Concerning all of the above, suitable recommendations have already been made, which if approved will mean that there is no part of the British Isles that cannot be readily and systematically covered by travelling agents and officials of the department. A thousand and more new people appear in the emigration field every day so the work which is never complete should never stop.

EMIGRATION AGENTS—CONTINENTAL

Since we closed all these agencies on the Continent as the Great War progressed, no regular agency has been reopened. Our agent in the office of the Commissioner-General for Canada in Paris continues to do such emigration work as comes to hand from France, and an office for closer inspection of emigrants passing through Antwerp was opened with an officer in charge in the latter city. But emigrants are passing out of Europe through a dozen other ports besides Antwerp, so that the whole question of inspection, etc., on the Continent is one that will have to be faced at an early date.

FOREIGN SECTION

Correspondence has taken place during the year between this office and the following countries concerning the proposed emigration of all classes of people:—

France,	Bulgaria,	Malta,
Luxembourg,	Ukrainia,	Tunis,
Belgium,	Czecho-Slovakia,	Greece,
Holland,	Jugo-Slavia,	Cyprus,
Switzerland,	Lithuania,	Crete,
Norway,	Latvia,	Egypt,
Sweden,	Esthonia,	India,
Denmark,	Austria,	Mesopotamia,
Iceland,	Germany,	Syria,
Italy,	Hungary,	Palestine,
Spain,	Danzig,	Paraguay.
Roumania,	Silesia,	
Russia,	Poland,	

During the year, 1,238 files relating to nationals of these countries have been opened in consequence, which number represents approximately 9,000 letters; while files of a continuous nature have been added to during the year by over 600 letters. Every day, in addition, we have callers of various nationalities.

Emigration office in Paris.—During the last fiscal year, 1,606 persons applied for information regarding Canada, 1,331 letters were received; 1,167 letters were mailed, together with 494 parcels of literature. There is no doubt that people in France are very much interested in Canada, and appreciate keenly all available literature on Canadian life and prospects there.

The question of proper medical inspection of continentals, and disinfection of their persons and clothing, is one of vital importance. The steamship companies concerned have now established an institution known as "Atlantic Park," consisting of large buildings, which may readily be extended, about five miles from the port of Southampton, capable at present of housing, examining and disinfecting between one and two thousand continental emigrants. It is obviously an impossible task to critically examine continental emigrants at the ship's side.

STEAMSHIP SAILINGS FROM THE BRITISH ISLES

The fleets available for emigrants to Canada far exceed those required during last year and at the time of making this report. There have been times when emigrants crowded Canadian ships from month to month, but conditions in Canada do not now permit such free movement of emigrants, and many of these excellent ships sail with only a portion of their third-class accommodation occupied. There is little or no complaint possible now regarding the character of the accommodation for British emigrants on Canadian liners.

Under the authority of the Imperial Government, Canadian steamship lines and other companies have authority to bring continentals into the ports of England, and to pass them through the British Isles under the protection—to the British public—of a transmigrant bond to the Imperial Government. This movement tends to increase as British and Canadian shipping seeks, very properly, to extend their operations as common carriers.

STEAMSHIP SAILINGS FROM CONTINENTAL PORTS

At the moment Antwerp and Havre are the only ports outside the British Isles at which there is a definite attempt by any official of the department to inspect

emigrants going on board, and inspection at only one or two ports will not provide much in the way of safeguards for Canada.

Emigrants leave Western Asia, Northern Africa and Europe from the following ports: Bergen, Christiania, Rejkavik, Stockholm, Helsingfors, Riga, Libau, Danzig, Copenhagen, Bremen, Hamburg, Rotterdam, Antwerp, Cherbourg, Havre, Marseilles, Alexandria, Genoa, Naples, Trieste, Beyrout, and if not going direct to Canada they arrive in the British Isles at one of the following ports: Leith, Newcastle-on-Tyne, Hull, Grimsby, Harwich, London, Dover, Folkestone, Newhaven, Southampton and Plymouth, and sail for Canada from London, Southampton, Bristol, Liverpool and Glasgow, with calls from the last named at the ports of Moville and Belfast in Ireland. The details of this greatly complex situation cannot be set down in any single report.

MEDICAL EXAMINATION BEFORE AND AT EMBARKATION

The appointment by the Department of Health of Dr. Howard B. Jeffs to advise in the medical examination of British and continental emigrants has been entirely satisfactory, and has prevented painful distress in many cases had certain emigrants been allowed to go forward, only to be rejected at the port of landing in Canada. The beneficial result of this appointment proves the great need of such medical advice for years past, but this special service could be materially augmented with profit.

It is obvious that only a small proportion of those who go to Canada are seen by Canadian Medical Officers, nor is it necessary that every emigrant should be so examined as such a policy would unduly interfere with the freedom of travel. At the same time, certain classes of emigrants are by law required to obtain written consent from this office, and we cannot give such without prior medical examination. Our past experience indicates that in most cases a family physician gives the benefit of any doubt to his patients, which fact makes it advisable for emigration purposes that certificates should be sought from others. Indeed, the result of imperfect medical certificates has proved disastrous to the emigrant, as well as expensive for the Canadian Government and transportation companies. This experience was not that of Canada alone; I know by inquiry the same difficulty occurred in connection with the Oversea Settlement office of the Imperial Government, and all other overseas dominions of the British Empire. It was a matter for several conferences between emigration officials concerned, and as a result there has been prepared a "Roster of Medical Practitioners who may issue Medical Certificates for use by the Oversea Settlement Office and the Immigration Services of the Overseas Dominions," which is now in use, having been sent to approved booking agents and others concerned. Already we find the medical certificates issued by practitioners on this roster indicate a strict and careful examination of the applicant, and afford such information as enables our medical adviser in nearly every case to express a definite opinion which he knows is based upon the actual physical and mental condition. The roster is subject to revision from time to time.

The adoption of the roster obliged the adoption of a composite or general medical certificate for all overseas dominions and the Oversea Settlement office.

LECTURES

There still is considerable difference of opinion between lecturers as to the value of cinematograph films over lantern slides, and much as the former are desired and are necessary, our own lecturers will not altogether forsake the lantern slide, which enables them to comment at length upon the illustration before the audience. Films cannot generally be used by our agents unless they are supplied with the means of conveying electric current to the projector.

It would be to the advantage of our work if each agent had a motor-car with a generator attached for electric supply, a portable cinematograph projector, and a

supply of films, showing the resources and development of Canada. With this outfit and the large stock of lantern slides we always have on hand, our agents would be equipped as missionaries of Canada, carrying propaganda to the smallest town and the remotest hamlet.

The lecture season in the British Isles cannot commence before the end of October and must end before the close of March in the following year, because summer-time comes into effect on the 1st April, making the day longer, and, therefore, the evening, in which lantern slides or films can be shown in a schoolhouse, for instance, so much shorter that audiences will not congregate for the purpose.

On grounds of economy no lecture programme was authorized last fall, but towards the end of the year a small sum was available; then arrangements were difficult because buildings had been previously engaged.

Although a full course of lectures was not permitted our own agents in London gave 25 lectures, and our agents in branch offices gave 124 lectures. Our lantern slides on Canada were requisitioned by schoolmasters and others, and were utilized during the last fiscal year on 545 occasions without cost to Canada for display.

In arranging our lectures due recognition is always given to other Canadian public and commercial interests so that no clashing of dates occurs.

LITERATURE

In normal years for active propaganda we use and require for exhibitions, shows, lectures and general inquiries on this side of the Atlantic between 2,000,000 and 3,000,000 pieces of literature. Only a small proportion of this was available during the past fiscal year but with our restricted propaganda, the supply on hand, with that sent forward, was sufficient for our purposes.

The School Atlas stands pre-eminent as the first and best literature that can be used for Canada. This admirable publication is used as a text-book by many thousands of school children, who may not emigrate this year or next but whose minds are thus bent Canadawards to the benefit of our Dominion in the future. General literature on "Classes Canada Calls For," "Opportunities for Men and Women Settlers," "Land Regulations," etc., is always needed in a propaganda for emigrants.

ADVERTISING AND PUBLICITY

It cannot be gainsaid that the best advertising for Canada is not the large and expensive display but is the item of interest wrapped up in the news columns of the papers from day to day. These news items were furnished by us from week to week to between eight hundred and a thousand newspapers, and were published at the absurdly small cost of a few condensed advertisements.

Rates of advertising have been very largely increased. From the cessation of all advertising for a whole year comes a condition that will require the expenditure of at least double the amount at my disposal in previous years for this essential form of publicity. Nothing can take the place of properly prepared and edited news of Canada and her development and resources appearing from week to week in hundreds of newspapers.

EMIGRATION OF WOMEN

We have not sought the emigration of any class of women but household workers; we have not, however, refused to consider any other cases on their individual merits. Our Women's Section, with qualified Canadian women at each port, have given of their best to their work, protecting and supervising all women and child emigrants whether unaccompanied or travelling with friends, and placing specifically in the care of matrons on shipboard any individual case that appeared to them needed special consideration, thus securing not only the best of attention en voyage, but bringing directly to the notice of women officers at Canadian ports of landing any case requir-

ing more than ordinary consideration. In order to facilitate the work at the port of landing a simple scheme of identifying coloured ribbons has proven to be of great value.

The paramount reason why Canada receives so few female household workers is that so many desirable women who would like to go have no means to buy their transportation, and here the other dominions step in to Canada's disadvantage, giving these women free transportation at twice the cost of going to Canada, and in some cases giving them each $10 pocket money besides. The point obtrudes that unless and until Canada meets this situation, our Women's Section have an uphill and almost impossible task. Either financial assistance must be given or the cost of transportation cut down very considerably.

EMIGRATION OF CHILDREN

There has been during the year an increase in the activity of societies interested in the emigration of children to Canada, and several large parties of splendid children have arrived in the Dominion. Every care is taken to examine all these children before they leave the home or institution for the ship's side, and, of course, they are subject before embarkation to the usual inspections, like other passengers. We shall be glad if the number of such children is very largely increased.

OFFICIAL FIGURES

The Imperial Government have not yet resumed the publication of official returns, showing the number of people leaving the British Isles for overseas dominions and elsewhere, and we have therefore to rely upon our own departmental information on this point. The Government of Ireland, however, until quite recently have issued official figures, showing a remarkable diminution since the unsettled conditions in Ireland became accentuated. These have been reported to the department from time to time.

DEPORTATIONS

We have dealt with 790 cases of deportation during the past year, and have taken care that these unfortunate people have been properly received, and the individual attention each one required has been given at the minimum of cost to the department.

FRAUDS AGAINST EMIGRANTS

There has been no occasion during the past fiscal year to institute proceedings ourselves against anyone in this regard, but we have continued to bring to the attention of the Home Office authorities and the police any suspicious advertising or circumstance.

RELATIONS WITH OTHER GOVERNMENTS

Again I have pleasure in recording the extreme cordial co-operation by the Oversea Settlement office and all other departments of the Imperial Government with this branch of the Canadian Public Service, and also to refer with special pleasure to the mutual work between the Agents-General of the various provinces of Canada and this department, carried on during the year.

IMPERIAL GOVERNMENT OVERSEA SETTLEMENT CASES DEALT WITH DURING THE YEAR

Cases	Accepted	Rejected	Cancelled and in hand	Total Applications
Men (Members in family not included.)	2,186	12,212	5,765	20,163
Women (Not including domestics or other unaccompanied women paying their own transportation.)	1,052	220	1,300	2,572

PASSPORTS

There has been no change in the system requiring passports from continental passengers, and not requiring them from those leaving the British Isles.

CORRESPONDENCE AND ENQUIRERS

Inward letters	89,757
Outward letters	90,491
Total	180,248
Parcels of literature sent out	5,036

LITERATURE DISTRIBUTED—PAMPHLETS

	London Office	Branch Offices	Total	
	157,225	231,307	388,532,	including
Atlases, as follows:	15,095	47,607	62,702	

PERSONAL ENQUIRERS AT LONDON OFFICE

Men	16,291
Women	5,439
Total	21,730

FINANCE

The accounts for the year have been closed within the estimates, leaving no unexpended balance, and were skilfully and regularly kept notwithstanding the constant fluctuations of exchange between the Canadian dollar and the sterling pound. Our expenditure in Europe was nearly $125,000 less than the previous fiscal year.

Accounts for repatriation under the Demobilization vote are not closed as cases constantly recur and settlements with shipping companies and others are not complete.

ORGANIZATION

All emigration agents and women officers in the service in Europe were either born in Canada or were residents there for considerable periods. Their hours of duty though limited by regulation are not limited by inclination, seeing many of them work many hours after the public offices are closed.

Our arrangements and organization continue to be of such a character that we can augment the flow of emigration to Canada, or retard the same, as the department desires, from time to time, at very short notice, but this means the expenditure of a reasonable sum of money, and encouragement of the officers of the department to carry on their duties with enthusiasm.

The difficulties are very great in dealing with conditions surrounding intending emigrants from over twenty different countries in Europe, whose passport regulations and conditions of life are so diverse. The re-establishment of offices at various ports on the Continent has become imperative.

I desire to convey to the Canadian Government through you the undoubted loyalty of the whole of the staff of the European service of the department, and to assure you that nothing has been or will be left undone to carry out the instructions and the intention of the department, as expressed from time to time.

REPORT OF W. J. WHITE, SUPERINTENDENT OF UNITED STATES AGENCIES

The past year has fully borne out the prediction made in my report of the year previous that the immigration to Canada from the United States for the year 1921-22 would be of a class equal to any of previous years. I had not expected that there would be any great increase in numbers. The aftermath of the war was still present. During the war period, drastic restrictions were necessarily put into effect, and no doubt for good reasons these were continued after the close of the war. While they had the desired effect of keeping out many undesirables, the precautions were so sweeping that there were those who, able to qualify as far as farming experience, character, finances, etc., were denied admission, owing to the legal obstructions that it was not deemed advisable to remove. These restrictions were the means of deterring a great many who would have become a profitable addition to Canada's farming community. Undoubtedly, the intention, when the restrictions were made, was to protect Canada and debar those who were undesirable. At the same time, however, this rendered impossible the admission of some, who, on reaching the border, looking for homes in Canada, found that they had to return home or await the decision on an appeal to the department, which in their impatience they did not care to do. It did not end here. Aggrieved at their reception, they sent back to their home the report of their rejection; or, carried it back with them. The report went from house to house, and as it spread nothing was lost in the telling. It could not be overtaken. In fact, everywhere there was an almost general impression that admission to Canada was so difficult as to be almost impossible. With a large amount spent in publicity, and strenuous work on the part of our agents, we were able in some degree to overcome the widespread impression, and convey a clearer conception of what was required by Canada in the admission of settlers.

While the restrictions have been drastic, and while their operation were the cause of keeping from our farming lands numbers who would have made good settlers, there is no doubt that they produced a good moral effect, which will, if it has not already done so, show that Canada's gates are open only to those who will be factors in the building up of a great nation, unspoiled by anarchism or bolshevism. I have unlimited confidence in the character of the people of the United States whose good sense recognizes and appreciates Canada's problem. There are to be found large numbers who desire to share and support Canada's determination to continue in her aim to have as residents those only of a law-abiding and law-observing disposition.

I trust that during the present session of Parliament legislation may be enacted that will lift the barriers that have hitherto kept out a number of a class that Canada needs and is seeking. The difficulties thus removed, I am sure that the labour of our agents in securing people valuable to us will be greatly lessened.

Reference is here made to the peculiar and difficult situation for the information of those who may have thought that when the war was over there should have been an immediate return to a pre-war influx of the farming class. Had the energies of the agents of the department been restricted only to securing desirable agriculturists, and had they been at liberty to send forward all who applied, the statistics of the department would have told a different story for the year 1921-22. Some desirable people could not come and the influence of the agents was directed to having them remain where they were.

In my last report, I dealt with conditions in some of the States in which we are operating as being of a depressing nature, which, until recovered, would prevent the migration of farmers who would add materially to the numbers and help to maintain the high character of our farming population. Principal of these was the inflated land values of a few years previous and the deflated prices for the produce of the lands. Until a parity in prices of produce and values of land was brought

about there would remain a period during which the farmer would be materially affected. He owed large balances on his farm, he had assumed liabilities that exhausted all his power of production; the original owner in turn had purchased land elsewhere at a somewhat lower price, but still also too high. His future payments he was unable to meet, because the one to whom he had sold could not meet those due him. The condition thus brought about was in a measure responsible for making hard times worse. Then the renter of some of these high-priced farms had his rent increased until some were asked to pay as high as twenty dollars an acre. The tenant was handicapped by conditions surrounding the tenure of his lease that made it impossible for him to make a change. This was the man of whom we had high hopes. There is every evidence of a change, and when it comes we will doubtless get a large share of the benefits.

If those who hold the opinion that there should come from the United States settlers in large numbers will take into consideration the facts above outlined, at the same time reviewing carefully some of the conditions at home, I feel that in fairness they will concede that the agents who have the work in hand in the United States have done creditably during the past year.

Their work has been consistently and carefully done—it has been their religion, so to speak. They are men of keen judgment, active and energetic, men who have made a study of economic questions surrounding the securing of settlers. Their experience in meeting people of all ranks and persuasions has given them an intimate knowledge of individuals that can only be gained by experience. Their work is carried on without animus or prejudice, their operations are open and above-board In carrying them out, they meet with those who may look upon the effort to secure Canadian settlers as not being in their interests, but there has yet to be found any opposition that might be classed as such. On the contrary, in every territory in which our agents are, I have found a remarkable feeling of friendship extended towards them, and in many cases a desire to assist. This would not be were anything like aggression shown on the part of our representatives. It is therefore strikingly gratifying that Canada is represented by men who are able to generate and perpetuate this feeling.

It might not be out of place here to point out that a propaganda of repatriation is largely carried on by the Government representatives in the States. This is confined to those who, for one reason or another, have left Canadian farms and taken up holdings in the United States. They are sought, their homes visited, and effort made to learn the reason for their moving from Canada, and then comes the endeavour to have them return. The presence of a Canadian Government representative in their district has led some to seek his aid. They are anxious to return. His services are fully at their command. A summary of the results would be impossible, but may be indicated by the fact that in the territory of one of our agents, no less than thirty-one such families moved to Canada in January of this year. They had been led to dispose of their Canadian holdings in the hope that there would be a speedier betterment of their condition if they returned to their old home county in the United States, or some other county that appeared to offer the inducements they were looking for. Their first Canadian venture was a success, but there was that feeling of unrest within them that they had to move. They did move. But the enchantment of the old home was not there, the allurements that they had looked for proved a mirage. They were not contented. As they looked back across the border-line, and saw the Canadian home they had left, with its rich soil, abundant crops, the wide prairie with its background of hope and encouragement, the discontent grew and there was the strong desire to return. We find that those people become the best citizens Canada can have. When we hear of some one selling out and going back to the States, we do not worry; we know he will return. Well, this

is repatriation work in which our agents engage. I could go on and tell of work of this kind being carried on in the Central and Eastern States, but the boundary reports will reveal more fully than I can state the excellent work that has been done by our agents there in directing to new homes in Ontario, Quebec and the Maritime Provinces, those who could claim these as their birthplace. Some also have gone farther afield, and are now preparing homes in Western Canada.

The agents carefully carry out instructions to be conservative in their statements when advising prospects of conditions in Canada and what they may hope for. Nothing alluring, that cannot be substantiated, is promised. The result is shown in our files, which carry letters speaking in high terms of the truthfulness of those who were instrumental in causing the removal of the one who had written. Nothing is more pleasing than to read some of these letters, in which the writer is led to say, "You did not tell me one-half." It has been said that "there is no better immigration agent than the satisfied settler." This statement has an echo from the field of every Government representative. It is borne upon him frequently by those who call and tell him what their friends have written back. This is a certain incentive for the agent to continue exercising the greatest care during his task of solicitation. At a meeting held in Saskatoon, I had this in mind when addressing a number of farmers and others interested in immigration, and desirous of securing settlers for their district. I endeavoured to impress upon them the necessity of co-operation—co-operation in making helpful conditions in the territory into which our agents were sending people, giving them a sense of welcome and a knowledge of the land, assisting in making the social surroundings of a character that leaves no question as to the desirability of the district for the bringing up of a family. On our part, we could get the people. It was for them to do their part. The old saying "first impressions are lasting" is as good to-day as when it originated. The first impression is largely what a "Welcome Committee" can make it. Upon this depends largely the character of the report sent "back home" to the friends left behind. If a good report is sent, the work of the agent is lightened; if bad, he may as well stay away from that district. This is an important point. Give the newcomer the welcome that he deserves. He has broken up his home, the home that had been his for a good portion of a lifetime, and has traveled many miles to begin life anew, under changed conditions. The entire neighbourhood should assist in this welcome. The land agent should be one of the committee of welcome, the business man, the implement dealer and the horse dealer, the teacher and the preacher. They all should be on the committee. They should keep in mind the fact that he will prove an asset to the community. Don't overcharge him; if he looks good, give him credit, loan him a team of horses, place a light in the window, have the kettle boiling. Do this, and more, too, if you can, and the word, the knell of his welcome will be sounded until it is heard "away back home" where he came from, and the work of getting more people is made much easier. These were thoughts to which I gave expression, and if acted upon in all parts of the country, in each district, it would bring about the co-ordination I have in mind.

The location of our offices brings to them other matters concerning Canada than those of immigration, and they prove useful to those seeking information on mining, customs, business opportunities, and a dozen other things, which cause the agent and his staff to be carefully advised on other things than the primary work of immigration.

The general work, which is carried on by means of advertising in farm journals, county weeklies, distribution of literature, etc., is augmented by the work done at the county, state and international shows. Under the superintendency of the Exhibitions Branch of the department, exhibits of grains, grasses, seeds, minerals, fruits are prepared and installed under direction of the agent in whose territory the show or exhibition may take place. The agent and assistants are there, early and late, impart-

ing information. These exhibitions are productive of great good. Wherever it is felt that benefit would likely be derived, effort is made to instal a Canadian exhibit. I have found the co-operation of the Exhibition Branch highly satisfactory. The work done by it, and produced for the public eye, is deserving and always receives the highest meed of commendation. This was strikingly illustrated at Tampa, Florida, in February just past, where the Southern Florida Fair Board gave to us, free of charge, the use of a building 50 by 100 feet, which, handed over to the Exhibition Branch, was soon converted into a picture, such as had never been seen by thousands of people, many of whom came scores of miles to see it. Products of the field, of the mine, of the orchard and farm were shown to decided advantage. February was selected as a good date. Thousands of low-priced cars were parked in the ten or twelve parking grounds adjoining the city. They had been driven down from North Dakota, from Washington, Oregon, from Michigan, Ohio, Pennsylvania, and New York, and almost every intervening state to Georgia and Alabama. They were owned by farmers, down there for a few weeks' "lay-off" from farm work. Their pastime was "pitching" horse-shoes, viewing the sights and enjoying the climate for which Florida is famous. They showed their appreciation of the Canadian exhibits by such remarks as "Well done, Canada! We of the North will show those of the South what we can do." It was not alone this meeting of the two extremes on such friendly terms that was pleasing, but by this means, more than by any other probably that could have been adopted, there was brought to the attention of thousands of farmers from thirty-eight or forty states the fact that Canada was seeking settlers on lands that could produce grain, fruit, and other farm products, as well as wool, minerals, etc., such as were the marvel of all who saw them.

As to the prospects for the ensuing year, while the correspondence at our various offices during the past three months should serve as a barometer, I cannot hold out great hopes of a much increased number of settlers, until probably fall, or say, beginning September. Then, I believe, we will see a larger number than for many previous years. Our correspondence, considerably in excess of the past few years, during the same period, full of splendid promises, largely dependent upon some conditions, gives great hopes. Owing to the straitened circumstances to which many of the correspondents have been reduced, reasons being given elsewhere in this report, they will not have as much money as they otherwise would have had, but will still have enough to give them a fair start. The price of Canadian lands did not take part in the big advances made on the United States side of the line, and this will prove an inducement. The difficulty will be the cash payment required, and the terms for the balance. If these are made to fit the purse of the applicant, whose other assets may be equipment and a fair-sized family, I am convinced there will be seen a satisfactory class of settlers crossing the border going northward and westward during the autumn of 1922.

REPORT OF THE COMMISSIONER OF EXHIBITIONS, A. W. TOLMIE

During the past fiscal year the Exhibition Branch has been actively engaged in the preparation and installation of exhibits in many centres in the United States and Great Britain. These exhibits comprised samples of the different natural products of the country together with framed photographs of scenes from different sections of the country. Exhibits were secured in both eastern and western Canada. From eastern Canada samples of fresh fruits were shipped to the most important fairs, fresh vegetables were also shipped from Ottawa to all fairs held east of the Detroit river.

During the season, about 150 jars of specially preserved fruits were secured and these have been processed and are ready for this year's work.

At headquarters in Ottawa we built six complete exhibition stands, these were used as a centre feature in all our exhibits. They consisted of a handsome stand 33 feet long by 12 feet high and finished to represent antique metal, in the centre of each stand was an agricultural scene 30 feet long, made entirely of grains, seeds, and

grasses, this made a very attractive feature, as I believe we are the only ones who have been able to make pictures of this kind successfully. The front of these stands consisted of a series of shelves on which exhibits were displayed, while reading matter pertaining to advantages which Canada offers was displayed on the front panels. On a wall space 15 feet by 14 feet on each side of the stand, excellent samples of Canada's grain in straw as well as fodder grasses were displayed. Samples of minerals and woods were shown on suitable show tables provided for this purpose.

At our western warehouse in Winnipeg, samples of grains (in straw and threshed), and fodder grasses were secured, sorted and prepared for exhibit purposes. Vegetables for all exhibits west of the Detroit river were collected and shipped from Winnipeg as well as samples of dairy products.

One hundred and thirty boxes containing small school exhibits of grains and grasses were also made up and shipped to different schools in the United States.

Exhibits were shown at twenty-three state fairs, which included the following:—

Henderson, Ky.,
Tampa, Fla.,
Shreveport, La.,
Dayton, O.,
Dallas, Tex.,
Detroit, Mich.,
Springfield, Mass.,
Manchester, N.H.,
Helena, Mont.,
Waterloo, Ia.,
Syracuse, N.Y.,
Peoria, Ill.,
Memphis, Tenn.,
Salem, Ore.,
Fargo, N.D.,
Grand Forks, N.D.,
Huron, S.D.,
Indianapolis, Ind.,
Milwaukee, Wis.,
Lincoln, Neb.,
Hartford, Conn.,
Spokane, Wash.,
Sedalia, Mo.

also at the International Live Stock Show in Chicago.

Each of these fairs extended over an average period of ten days and the aggregate attendance would be in the neighbourhood of nine millions, at least half of these people saw the Canadian Exhibit.

Besides the above-mentioned state fairs we placed smaller exhibits in some sixty county fairs. The average duration of these fairs was four days and the aggregate attendance was about six millions.

After the opening of these exhibits, the Canadian Government Agent in the district in which the fair was held, took charge of same, and together with his Assistants distributed Canadian Government literature and gave authentic information as to opportunities and conditions in Canada.

A new permanent exhibit was placed in the exhibit room in connection with the Detroit Agency; this point is very advantageous, as there is a great floating population in this centre. The office is so situated that nearly all visitors to the city pass the windows and can hardly miss seeing it.

Our other permanent exhibits in Chicago, St. Paul and Syracuse were all renovated and brought up to date during the year. Material has been supplied with which to make window displays in other agency windows.

Exhibits of grains (in straw and threshed), vegetables, fruits (fresh and bottled), minerals, woods and framed photographs, also two complete exhibit stand outfits have been sent to our new central warehouse in Liverpool, for use at different fairs in Great Britain. Last year, exhibits were placed in eight large agricultural fairs, also many others at what are called agricultural society fairs. In this connection, it might be well to mention that exhibition work in Great Britain differs greatly from that in the United States, owing to the fact that there are no regular buildings in fair grounds in Great Britain, and any exhibits made, have to be put up in tents, which do not lend themselves to exhibit work as a regular exhibit building does.

Plans are at present under way for the coming season's work, and everything points to another successful year's operation.

SESSIONAL PAPER No. 13

REPORT OF THE DIRECTOR OF PUBLICITY, ROBERT J. C. STEAD

It is an accepted principle among advertising men that there are three subjects concerning which every advertising expert should have the most complete knowledge. The three subjects are: the goods he is advertising, the public to whom he hopes to introduce these goods, and the media by means of which the introduction is to be made.

When one thinks of the publicity work of the Canadian Department of Immigration and Colonization in the light of the foregoing remark some grasp is gained of the scope of that work. The goods to be sold are the opportunities which Canada offers to new settlers; the public to whom the goods are to be sold are desirable citizens the world over; the media to be used comprise every form of publicity endeavour. This is a task which if developed to its fullest possibilities, would call for a very much larger publicity organization than has yet been provided. The present situation is accepted as inevitable during a period of retrenchment, and with the limited staff and facilities available, the work has been carried on during the year ended March 31, 1922, with as much energy as possible, having regard for conditions which necessarily restricted our field of activity.

Publicity is the first step toward obtaining the settler for Canada. The man or woman with capital or energy necessary to share in the development of the Dominion, and resident in the United Kingdom, the United States, or elsewhere, must first have his or her interest in the opportunities which Canada offers aroused before any further steps can be taken by the colonization machinery of the Dominion. It is the business of the Publicity Branch to arouse that interest. In addition, we seek to give correct information about conditions in Canada to all and sundry, whether or not there is any possibility of direct results expressed in immigration. We also carry on a very extensive system of educational work through the public schools of other countries, believing that the information which the child absorbs in school concerning Canada will never be forgotten, and may in time serve to offset the erroneous and sometimes ludicrous ideas concerning Canada which still prevail even in the United Kingdom and in the United States.

For purposes of review, the publicity work of the department falls into the following classifications: Advertising, booklets and publications, news and feature articles, lectures, motion-pictures and photographs, journalists and editorial parties, and general.

Advertising.—For obvious reasons the advertising of the Department of Immigration and Colonization is carried on almost entirely outside of Canada. It may be mentioned in passing that this results in Canadians as a rule having very meagre ideas of the scope and extent of the work which has been carried on by the department. The Director of Publicity has often had the experience of being asked by well-informed Canadians when the department proposed to renew its immigration activities, and at the very moment the question was asked, the advertisements of the department were appearing in more than four thousand newspapers and agricultural journals in the United States alone. These publications, however, do not to any great extent come before the attention of Canadian readers, and for that reason the extent of the department's publicity operations is not appreciated in Canada as it would be if the subject were one calling for concentration of effort inside of the Dominion.

The fact that our advertising is carried on outside of Canada demands not only a wider survey of conditions than would be necessary for domestic campaigns, but also consideration of local and national sentiment in the countries in which our advertising is appearing. Canada appeals for only the highest type of settler, and it is quite natural that other countries may feel some reluctance in parting with such settlers. It can be shown that such a view is short-sighted, and a phase of our

publicity effort has been directed toward making that point clear in other countries, as anything which contributes to the prosperity of Canada contributes also to the prosperity of our national neighbours. The pulse of sentiment in the countries in which our advertising is being carried must, however, be carefully watched and every care taken to conform to the wishes of the people among whom we operate. This has been done with so much success that for a number of years no serious protests against the publicity operations of the department have come from any field in which our advertising was being carried on.

Following the policy of recent years the advertising of the department has been directed almost entirely at three types of possible immigrants; namely, farmers, farm labourers, and domestic workers. The copy has been designed to appeal to these classes and has been placed in papers and periodicals—mainly farm journals and small weekly newspapers—circulating among them. Small display copy in a large number of publications is preferred to large copy in a few publications as covering the field more thoroughly. On account of industrial conditions which offered no immediate prosperity for the worker without capital and without farm experience our general advertising campaign in the United Kingdom was suspended during the year, and our advertising in the United States was concentrated upon the farming classes with a view to obtaining settlers experienced in agricultural methods employed in this country and with sufficient capital to start up on their own farms. Approximately four thousand newspapers and farm journals in the United States were used in this connection during the year. In addition to display advertising paid readers setting forth conditions in Canada and the agricultural opportunities in this country are inserted in large numbers of weekly newspapers circulating in the rural districts.

Booklets and Publications.—A new departure was made under this heading in the production of a vest pocket booklet called "A Manual of Citizenship," which for the first time was issued during the year. It is designed not for the purpose of encouraging immigration to Canada, but to enable the newcomer quickly to assimilate himself in the Canadian population. Much useful information and many suggestions for the guidance of the new immigrant are contained in this little publication. Among the subjects included are short articles on:—

How Canada is Governed.
Provinces of Canada.
Distances in Canada.
Miles between British and Canadian Ports.
Principal Railways.
Naturalization and Voting.
Homestead Lands.
Experimental Farms.
Immigration Halls.
Hostels for Women.
Employment Offices.
Money and Banks.
Chartered Banks.
Public Holidays.
Education
Legal Weights and Measures.
Standard Time.
War Stamp Tax.
Some of Canada's Resources, etc.

Twenty-five thousand copies were printed and distribution has been made mainly in the United Kingdom, where it is aimed to place a copy in the hand of every immigrant before he goes on ship board for Canada.

A new edition of the "Eastern Canada," booklet designed for distribution in the United Kingdom, was printed, as was also a new edition of a small pamphlet entitled "Women's Work in Canada," designed for distribution particularly among those likely to become domestic workers in this country. We also issued a new edition of a somewhat similar booklet entitled "Canada, Where, When and How," designed for general distribution in Great Britain.

The Descriptive Atlas of Canada issued by this department is designed mainly for distribution to school teachers and school children in the United Kingdom and the

United States. It is hoped in this way by placing authentic information about Canada in the schools of the countries mentioned that some of the misconceptions regarding the Dominion may be corrected. The Atlas is a substantial book of eighty pages and cover made up in the style of the school geography. It contains maps in colour of the Dominion and of each of the provinces. Separate editions are issued for distribution in the United Kingdom and the United States, the former showing in addition to Canadian currency, the same values quoted in sterling currency. For distribution in the United States 111,560 copies of this Atlas were issued during the year, and while no new edition was issued for distribution in Great Britain, the copy was thoroughly revised for that purpose and deliveries were being made from the printers at the end of the year of an edition of 300,000 copies which will be sent to England.

Our "Canada West" booklet is printed in two editions, one adapted for distribution in Great Britain and the other for distribution in the United States. A thoroughly revised edition of each publication was provided during the year of which 103,900 were sent to England and 568,500 were distributed in the United States. A summary of the principal publications issued by the Publicity Branch of the Department during the year follows:—

Manual of Citizenship	25,000
Eastern Canada, British edition	47,400
Women's Work in Canada	50,000
Canada, Where, When and How	100,000
Canada West, British edition	105,900
Canada West, United States edition	568,500
Descriptive Atlas of Canada, United States edition	111,560

News and Feature Articles.—The supplying of news concerning Canadian conditions and opportunities, and feature articles descriptive of certain phases of life and industry in Canada, is an important branch of our publicity work. The Weekly News Letter prepared in this office and sent to newspapers and news distributing agencies in Canada, the United Kingdom, and the United States, has grown to such dimensions that it is now necessary to have it printed, and the circulation is increasing weekly. We find it widely quoted in the press, and it is also distributed by our agents to enquirers for opportunities concerning Canada. A continuous supply of special articles is also furnished to the press, mainly outside of Canada, in order to give information about settlement opportunities and general conditions in this country. Clippings received show that these articles were very widely published, recorded publication obtained through one organization alone amounting to a circulation of over 66,593,862. In addition to publicity of a strictly immigration nature the Branch co-operates with branches of other departments from time to time and extends its facilities for anything in the public interest. Editors and publicity organizations are more and more turning to this branch for articles dealing with immigration matters and so far as is possible their requirements along these lines are made to the fullest degree.

Lectures.—It has not for some years been the policy of the department to engage lecturers on salary for the specific purpose of carrying on lectures, but the regular agents, particularly in the United Kingdom, do a great deal of valuable publicity work along these lines. They are provided with hand-coloured lantern slides and in some cases with motion-picture films, accompanied by suitable lecture notes which enable them to give interesting and authoritative addresses on Canada. Equipment for this purpose is also loaned to individual lecturers and to associations and clubs from time to time as opportunity offers, and a very large amount of publicity accrues at a comparatively small cost. I have also personally spoken to a considerable number of organizations during the year on immigration and allied subjects.

Motion-Pictures and Photographs.—The start which was made a year ago as mentioned in last year's report in the gathering of negatives for motion-picture

purposes was continued during the year under review. By co-operation with the Exhibits and Publicity Branch of the Department of Trade and Commerce the services of Mr. W. S. Carter, motion-picture photographer, were again placed at our disposal. Acting on instructions from this branch, Mr. Carter visited a number of districts in the Maritime Provinces and obtained both motion picture and still negatives showing various phases of the agricultural life in those sections. Later in the season, he went to British Columbia to continue this work but was unfortunately taken seriously ill and the work accordingly was interrupted, as it was not possible at that time to obtain a substitute. However, from the motion-picture negatives which have now been assembled by the branch it was possible to produce a film which has been entitled "Twenty Minutes in Canada," designed to give the prospective settler a glimpse of conditions as they actually exist in this country. Copies of this film have been circulated in the United States and the United Kingdom and are believed to be producing good results.

The demand for photographs to illustrate articles on Canada and for lantern slides for use in lectures on the opportunities in the Dominion continually grows. During the year we supplied some 737 photographs, a number of which were enlargements for wall display purposes, and we have also had made up and supplied numerous sets of lantern slides with accompanying lectures. The amount of this work being done is limited only by the ability of the staff to keep up with the demand upon it.

Journalists and Editorial Parties.—A phase of publicity work which is carried on from time to time is the entertainment of journalists and editors from other lands seeking information about Canada. Sometimes these visitors are received individually and on other occasions in large groups, consisting even of parties moved by special train through various sections of the Dominion. An arrangement for such a party of newspaper editors from a number of the leading agricultural states of the American Union was practically completed, but at the last moment had to be abandoned owing to the fact that it was apparent the cost would exceed the original expectations. As a result of this abandonment undoubtedly Canada lost an opportunity to obtain a large amount of favourable reference in the press which would have been represented, and the instance is mentioned as an indication that our publicity operations could be very greatly enlarged if the necessity for rigid conservation of funds were not so urgent.

As a result of the abandonment of the plans referred to in the preceding paragraph no large party of editors was entertained by the department during the year. Many individual journalists, editors and magazine writers were, however, received and were extended such courtesies and assistance as the various occasions suggested. The publicity arising from these connections is of a very far reaching nature and is usually out of all proportion to the expenditures involved.

General.—The field of a publicity office embraces work of such a varied nature that some of it is difficult to classify. All sorts of requests come to this office, varying from the letter of the intending settler in the United States, the United Kingdom or elsewhere who wishes to know "all about farming in Canada"—in itself a considerable order—to letters on subjects bearing no possible relationship to immigration, but which nevertheless demand a courteous and at times a quite extended reply. Persons who think of settling in a new land very naturally wish all the information they can get about that country, and it frequently happens that the kind of information in which they are interested lies very far out of the beaten track of office routine. The files of the branch would reveal inquiries on such subjects as the game laws in the McKenzie Territory, the divorce laws of the various provinces, the whereabouts of missing relatives, and a host of other subjects bearing no particular relationship to immigration. All such inquiries are answered as promptly and as fully as the exigencies of the case permit.

SESSIONAL PAPER No. 13

REPORT OF THE DIRECTOR OF PUBLICITY, WESTERN DIVISION, J. BRUCE WALKER

There has been a fair volume of business done through this office during the year. The direct correspondence between persons in the United States desirous of obtaining information about Canada continues to increase. Newspaper references to the office have evidently been copied extensively in the press of the middle western States, because a very large proportion of our direct inquiries for information come from the states of Illinois, Montana, South Dakota, Idaho, Iowa and Nebraska.

The action of the agents of the Canadian National Railway and the Canadian Pacific Railway operating in the United States, in referring prospective visitors to Canada to this office has resulted in a considerable number of persons calling here for the purpose of discussing opportunities and obtaining details of information with respect to settlement. The practice of meeting these people and discussing with them in an intimate and personal way their opportunities of settlement and chances of success would appear to be of some considerable benefit to those who are desirous of settling in the western provinces. While I cannot continue the matter further than discussing the opportunities and details in my office, I am satisfied that the information obtained here, together with the advice resulting from my practical knowledge of settlement, sends these persons on their way with increased confidence and likelihood of successful settlement.

In the course of correspondence from various parts of the west I notice the subject of land values constantly cropping up. The writers of these letters invariably indicate that they are either renting or purchasing land valued for sale purposes at from $250 to $350 per acre, and they are anxious to know if the average of land for disposal in Western Canada at the price of from $25 to $45 per acre is of approximately equal value to the land which they at present occupy or own. This feature of the correspondence with persons of the United States, and in conversation with them indicates at once the anxiety of owners of valuable land and renters of valuable land, to make such changes as would enable them to dispose of the property held at such high prices and embark in land purchases in our country, and most of them dwell upon the fact that while the cost of the land and general overhead is five or six times what ours is, the yield per acre in their case is not as great as our own, while the prices paid in the markets of the world for the produce are more or less the same as prices paid for Canadian produce of a similar character, and thus they argue that it ought to be to their interest to obtain land so much cheaper whose product will be at least equal in quantity and whose price in the markets of the world will be practically the same.

I have had a considerable number of letters from our agents in the United States who have been asked specific questions outside of the ordinary run, and for which some special knowledge is required before satisfactory answer can be given. This is particularly true where the correspondents have been making inquiry as to settlement conditions in newly opened up territory, or in parts of the country not yet organized. Many of the American inquirers are persons of the pioneer spirit who do not contemplate settlement within the confines of an organized area, but instinctively would prefer to make their homes under pioneer and primitive conditions, and therefore seek information not readily provided by the ordinary channels. Many of these investigations require considerable work and research.

The Farm Land Settlement Associations which have been in operation in the west for several years did not function very actively during the past twelve months. A few of the more energetic and enterprising members in each of the three Provincial Farm Land Associations have kept up their interest in the work, and have been provided with such material with respect to inquiries for land as came our way, but the great majority of the members have ceased to be interested, and the organizations generally, with the exceptions I have mentioned, are practically suspended. The general idea of these organizations appears to be practical and attractive, but in

actual operation the business prospects were spread over such a large number of members as to operate against a sustained interest in the work of the associations.

During last summer the Bankers' Association of the state of New York on their way to join the American Bankers' Association Convention at Los Angeles, passed through Canada in three special trains. I was directed by the department to meet these visitors as they entered the country at North Portal, and to travel with them west until they left the country at Seattle, en route to Los Angeles. This I did and found the visitors extremely interested in the Dominion of Canada. They travelled in three special trains de luxe, but I was able to make such arrangements as permitted me to change from one train to another during the progress west, and thus to mix with all the visitors and afford them such information, such facts and figures as interested them relating to the country they were passing through. It was in the middle of September, and the western harvest was in full swing, with the result that these visitors got a most favourable impression of the marvellous fertility of our western prairies. The occupants of the three trains met at Banff, and were entertained in the dining room of the Banff Springs hotel in the evening. I was invited by the management of the excursion to address the members on the subject of "Canada and its Opportunities," and was thus able to bring before these interested visitors some valuable information with respect to the country, and from the questions which they asked I am satisfied they were greatly interested. It may be mentioned in passing that the president of one of the largest banks in New York city, who canvassed the train for the purpose as a matter of friendly interest, told me that firms represented on these trains held amongst them an aggregate of close upon two hundred million dollars' worth of western securities, provincial and municipal. Very few of these visitors had ever seen Western Canada before, and they were loud in their expressions of surprise and pleasure, not only at its vast expanse of country, but at the wonderful fertility and cultivation which met their view on the long trip from Moose Jaw through to Calgary.

In July, at the invitation of the joint Chamber of Commerce of the city of Chicago and the Board of Trade of the city of Chicago, I was invited to address a series of luncheons in that city on "Canadian Opportunities," "The Story of Canadian Development," "International Trade Relations," "Our Nearest Neighbour," and "The Agricultural Possibilities of Canada's Western Provinces." I had large audiences at each of the five luncheons, and from the amount of publicity obtained (copies of which were sent to the head office) it would seem fair to assume that my visit was not without interest to the various organizations before whom I spoke, but also in bringing before the people of Chicago opportunities in the Canadian west.

At the moment of writing I have just concluded a series of successful visits in connection with the week devoted in the United States by the Kiwanian Clubs to the work of "International Good Fellowship," and the celebration of what is known as American-Canadian week. The Kiwanis Clubs of the United States, from ocean to ocean, celebrated this week. The international organization invited me, and I received permission from the department to visit Illinois, Iowa and Nebraska, and to speak at the principal Kiwanian organizations in these places on the subject of "Canada," "Our Nearest Neighbour," and "International Good Fellowship." At Chicago I addressed 750 members of the Kiwanis Club. There was a large procession in which thousands of persons took part, preceding the banquet, and everywhere was manifested the friendliest feelings towards Canada. At Omaha, Nebraska, where both Rotary and Kiwanis Clubs were addressed, interest was equally keen, and one of the local newspapers was good enough to broadcast my speech by radio telephone over the states of Iowa, Nebraska and Missouri, with the result that it was estimated that from fifteen to twenty thousand persons listened in on the radio.

From my visits to the United States and from the opportunities which I have had of meeting intimately large numbers of American business men and other persons interested in agriculture, I am satisfied that there is a revival in business, and that with this business improvement will come a revived interest in Canada amongst western Americans. They are eager for information about our country; ask pertinent and sensible questions, and the attitude of indifference that at one time prevailed so commonly has passed away, and everywhere there is a readiness to hear about Canada, and to discuss particularly her agricultural future. Among large numbers of agriculturists whom I met in the Western States, and who had themselves no immediate intention of coming to our country, there was nevertheless a live interest in our future, and it was generally recognized that our agricultural possibilities were such as within the next few years to engage and rivet the attention of the world.

A report was circulated during the year that the Canadian Pacific Railway Company intended to withdraw their immigration operations in the United States. This report I am glad to say has not been verified, and the indications are that instead of a withdrawal there will be an intensified effort by the Canadian Pacific Railway authorities to obtain an increased number of settlers from the United States for their western lands. I understand that this company is now engaged in working out a policy of selling land to persons in the United States who have equipment, and that this land will be sold on the amortization plan, with no payments for the first two years and no interest for the first two years; a loan of money to enable the settler to erect the necessary buildings; repayment of the whole to be spread over a period of twenty-five years at a low rate of interest. This policy will, I think, attract a great many renters, who have been obliged to pay rentals which the present price of farm products will not enable them to meet, and a policy such as this will enable them to move, with their plant, as soon as they can make arrangements to free themselves from their obligations to their present landlords.

The correspondence received in the office, and the correspondence sent out from the office, continues to increase, and I have reason to believe that upon the coming of more favourable conditions it will be possible for this office to afford to an ever-widening circle an accurate and intimate knowledge of existing conditions so far as agriculture is concerned in these western provinces.

REPORT OF COMMISSIONER OF IMMIGRATION, EASTERN DIVISION, W. R. LITTLE

BORDER PORTS

During the fiscal year which ended on March 31, 1922, there arrived at ports of entry along the international boundary, 31,704 immigrants, of whom 16,494 were admitted and 15,210 were rejected.

STATEMENT of Admissions, Rejections, Appeals, Investigations, Prosecutions and Cash Deposits at the various border ports for the year ended on March 31, 1922:—

Ports	Admissions	Rejections	Appeals			Investigations	Prosecutions	Cash Deposits			
			Sustained	Dismissed	Entry by Permit			Refunded	Forfeited	Pending	Total
								$	$	$	$
Amherstburg	1										
Andover	37										
Armstrong	2										
Aroostook Junction	35	9									
Aultsville	1										
Beebe Junction	986	367		3	1	25		2,350			2,350
Bridgeburg	1,569	1,454		39	54	19	2	5,025		100	5,125
Brockville	107	25				33					
Clair	14										
Coaticook	377	122									
Cobourg	18	2				5					
Comin's Mills	29	1									
Connors	1										
Cornwall	130	139				6					
Courtright	8										
Crystal Beach	30	91									
Debec	73	17									
Edmundston	41	6			1						
Erieau	10										
Erie Beach	1	17									
Fort Erie	179	73		5		2					
Frelighsburg	40										
Gananoque	9										
Georgeville		1									
Grand Falls	10										
Halifax	3	2									
Hemmingford	14	6									
Highwater	1,398	249						145		100	245
Kingston	97	16				50					
Lacolle Highway	83	299		1							
Lacolle Junction	372	592	1	7	24	1		6,200	350	50	6,600
L'Etete	12	6									
Magog	1	1									
Malone	185	141		3	1	7		200		150	350
Mansonville		2									
McAdam Junction	465	101		1	30			1,900		750	2,650
Megantic	66	20									
Midland		1									
Milltown	61	30									
Morrisburg	11	2									
Niagara Falls	1,334	4,049		26	54	125	8	850		200	1,050
Point Edward	1	18									
Port Lambton	16	2									
Port Stanley	1										
Prescott	133	109			4			175		350	525
Richmond Road	13	5									
Rockport	5										

STATEMENT of Admissions, Rejections, Appeals, Investigations, Prosecutions and Cash Deposits at the various border ports for the year ended on March 31, 1922—*Con.*

BORDER PORTS—*Concluded*

Ports	Admissions	Rejections	Appeals			Investigations	Prosecutions	Cash Deposits			
			Sustained	Dismissed	Entry by Permit			Refunded	Forfeited	Pending	Total
								$	$	$	$
Rouses Point	281	476		5	2			2,775		400	3,175
St. Agnes (Huntingdon)	53	23				2				50	50
St. Albans	761	333		6	7	2		200			200
St. Andrews	38	10	1								
St. Johns		7									
St. Leonards	37	6									
St. Regis		1									
St. Stephen	112	150		1	1	11	2	100			100
Sarnia	1,117	447	1	1		27		200			200
Sault Ste. Marie	478	229	2	9		38		325		300	625
Sombra	10										
Stanhope	26	20									
Toronto	118	15		44	70	3,328		9,392	1,150	9,795	20,337
Upper Mills	2	3									
Walkerville	503	826									
Wilson's Beach	4										
Windsor	4,779	4,644		87	15	608		1,640		500	2,140
Wolfe Island		1									
Yarmouth (via Boston)	196	44	2	30	1	361					
Totals	16,494	15,210	7	268	265	4,650	12	31,477	1,500	12,745	45,722

These figures do not include the large numbers of passengers who cross the international boundary at ports of entry who are subject only to preliminary inspection and who are admitted as "non-immigrants" for some temporary purpose.

To obtain some idea of the inspectional work it is necessary to compare the admissions and rejections at certain ports in the above table with the following statistics which show the actual number of passengers who entered Canada at the ports specified:—

Niagara Falls, Lower Bridge	695,000
Upper Steel Arch Bridge	2,947,937
Windsor, Walkerville Ferry	633,172
Windsor Ferry (approximately)	4,296,597

The ports of Queenston and Niagara-on-the-Lake are now under the jurisdiction of the inspector-in-charge at Niagara Falls, who also patrols the Niagara river from a short distance below Bridgeburg to Niagara-on-the-Lake.

An important feature of the inspectional work is the large number of passengers who travel during the summer on the Great Lakes, e.g., last summer, 515,279 passengers arrived at Crystal Beach. In past years, this inspection was made at Crystal Beach, but experience shows that a more efficient inspection can be made at the time of embarkation. Arrangements have, therefore, been made to have passengers for Crystal Beach inspected at Buffalo. The passenger service on the Great Lakes also includes vessels plying between Buffalo and Erie Beach; Detroit and Bois Blanc; Detroit, Sarnia and Sault Ste. Marie.

Members of the Royal Canadian Mounted Police are still rendering efficient service by co-operating with immigration officers, especially along the Quebec border.

The statistics for the various ports of entry along the international boundary show a marked increase in passenger traffic by automobile, e.g., at Lacolle highway 19,927 American cars, carrying 69,745 passengers, and 15,089 Canadian cars, carrying 60,356 passengers, were admitted.

OCEAN PORTS

The following passengers, destined to points in Canada, arrived at ocean ports: Quebec, 69,656; St. John, 16,309; Halifax, 11,501; Sydney and North Sydney, 5,105; and at United States ports destined to Canada: New York, 6,907; Boston, 274; or a total of 109,752. Of this number, there were 59,016 of the immigrant class, of whom 830 were deported. The remainder were non-immigrants, i.e., tourists, returned Canadians, etc.

STATEMENT of Admissions, Rejections, Appeals, etc., at Ocean Ports

Ports	Admissions	Deportations	Appeals			Cases referred to Bd. of Inquiry or Officer in charge	Investigations	Trans-Atlantic Passenger Vessels Examined	Crew Manifests Submitted
			Sustained	Dismissed	Entry by permit or otherwise				
Halifax	7,119	80	3	81	281	365	24	82	686
St. John	8,318	99	6	33	71	873	67	39	1,349
Quebec	40,730	526		269	414	1,202	27	105	55
New York	1,543	125		92	140	1,500	425		
Montreal						400	3,668	39	719
Boston	158							94	
Sydney	20					16	391	27	240
North Sydney	298								296
Totals	58,186	830	9	475	906	3,862	4,602	386	3,345

During the past summer, immigrants requiring medical treatment were detained at Savard Park Hospital and the accommodation in the Immigration building at Quebec was quite adequate for the detention of civil cases. As a result of the strict enforcement of the regulations, especially during the latter part of the summer, habeas corpus proceedings were instituted in thirty-seven cases at Quebec, but the decisions of the Boards of Inquiry were upheld and writs were denied in every case. The preliminary inspection at ports of embarkation on the continent of Europe has also to some extent reduced the number of detentions at ocean ports. The volume of immigration to cities was also materially affected by the Order in Council of July 26, 1921 (P.C. 2668), which increased the money qualification. It has always been very difficult to enforce the monetary regulation which provides that the immigrant shall possess in his own right a certain minimum amount of money. Credits would be established by letter or cable, especially in the case of immigrants from the continent of Europe who tenaciously adhered to the statement touching the question of possession of the necessary money qualification.

Occupation was also another general feature of misrepresentation. Many immigrants claimed that they were farmers or farm labourers, but in many cases cash deposits were taken to guarantee the statements made to the board in that regard. The following is a statement of the monies deposited in such cases:—

MONEY Deposited at Ocean Ports in Lieu of Bonds

Ports	No. of Deposits	Total Amount	Amount Refunded	Amount Forfeited	Amount Pending
		$	$	$	$
Halifax	6	4,250	3,050		1,200
St. John	7	1,700	1,700		
Quebec	33	14,230	1,300	1,100	11,830
Montreal	85	28,300	12,850		15,450
Sydney	16	3,400	3,350		50
Totals	147	51,880	22,250	1,100	28,530

ADMINISTRATIVE FINES

Monies were collected from transportation companies to cover eighty-seven administrative fines, the total amount being $13,200. Of this amount the fines assessed amount to $8,050, while $4,125 have been refunded, and cases involving the sum of $1,025 are still pending.

STATEMENT *of Administrative Fines*

Port	Cause	No.	Amount	Assessed	Refunded	Pending
			$	$	$	$
Halifax	Mentally defective					
	Physically defective	10	250	100	125	25
	Contagious or loathsome disease	1	200	200		
St. John	Mentally defective	1	200	200		
	Physically defective	3	75	25	50	
	Contagious or loathsome disease	17	3,400	1,200	1,800	400
Quebec	Mentally defective	35	6,475	4,425	1,850	200
	Physically defective	8	200	100	100	
	Contagious or loathsome disease	10	2,000	1,600	200	200
Montreal	Mentally defective					
	Physically defective					
	Contagious or loathsome disease	1	200	200		
Sydney	Mentally defective					
	Physically defective					
	Contagious or loathsome disease	1	200			200
Totals		87	13,200	8,050	4,125	1,025

DEPORTATIONS

The following statement shows the number of persons deported for causes subsequent to entry and the statutory causes for deportation:—

DEPORTATIONS, by Causes, from Eastern Division, for Fiscal Year 1921-22

—	To United States	To Other Countries
Accompanying deports.	6	24
Criminality	241	82
Epilepsy		8
Immorality	9	5
Insanity	10	66
Mentally defective		34
Neurasthenia		3
Prostitution	4	2
Public charges	49	645
Tuberculosis	1	22
Vagrancy	17	10
Venereal disease	2	3
Other causes	6	32
Totals	345	936

The Montreal agency may be described as the clearing house for immigrants who are deported to the United Kingdom and Europe from the Eastern, Western and Pacific Districts. The above figures include deports only from the Eastern District.

INVESTIGATIONS

Most of the investigational work is performed by our agents in Toronto and Montreal, and the three travelling investigating officers. In Toronto there were 3,328 investigations and in Montreal there were 3,668. In the Toronto and Montreal agencies the business transacted by correspondence may be summarized as follows:—

	Letters received	Letters mailed
Toronto	11,542	21,086
Montreal	14,184	18,826

The three investigating officers exercise and discharge the duties of a Board of Inquiry at any place other than a port of entry. Most of the cases heard by these officers are in asylums, penitentiaries and other penal institutions. The investigating officer for the Maritime Provinces conducted 60 investigations, held 35 Boards of Inquiry and inspected 146 British immigrant children. The investigating officer for the province of Quebec conducted 1,040 investigations and held 113 Boards of Inquiry. The investigating officer for the Province of Ontario held 525 Boards of Inquiry and conducted a large number of investigations.

REPORT OF THE COMMISSIONER OF IMMIGRATION, WESTERN DIVISION, THOMAS GELLEY

IMMIGRANTS FROM THE BRITISH ISLES AND EUROPE

All trains arriving in Winnipeg from Atlantic ocean ports were met, as has been customary, by our officers, who saw that those having to change trains were properly directed to their destinations, and given any other information necessary to their several requirements. The full value of this service is, of course, known only to the immigrants themselves, but it forms a necessary part of proper settlement work, and many expressions of thanks have been received from immigrant families at assistance rendered.

IMMIGRATION HALLS, WINNIPEG

No. 1 Hall.—Immigrants who were staying over in Winnipeg for a day or so for train connections, or other reasons, took advantage of the free accommodation offered by the Immigration Hall. Altogether there were 2,750 immigrants who spent an average of seven days in the hall. This is a longer average stay than usual, but was largely due to the unemployment situation. Out of the 2,750, 176 required assistance in the shape of food.

The meals supplied were as follows:—

To 176 destitute immigrants	6,982
To 453 deports detained en route	22,253
To Matron	1,043
	30,278

These meals cost $3,607.63, or an average cost of 12 cents per meal.

No. 2 Hall.—The financial year just closed has witnessed the development of two difficulties, happily uncommon, in connection with immigration work in the Western Division. The harvest crop, which otherwise would have been a fair average one, proved disappointing owing to generally unfavourable weather conditions, except in the northern parts of Manitoba, Saskatchewan and Alberta, where an average crop was secured. The market for cereals had reached a low point, and much of the wheat crop was disposed of at prices which in some cases hardly paid the cost of harvesting, threshing and shipment to lake ports. About 70 per cent of the total wheat crop was marketed under these conditions. The following comparative figures are interesting:—

TOTAL WHEAT DELIVERED AT COUNTRY POINTS

	Bushels	Estimated Value
To November 4, 1921	123,147,301	$120,575,982
Same period, 1920	101,520,000	220,847,156

It is estimated that on November 4, 1921, the value of the visible supply of wheat being carried on credit of Western Canada was $65,644,647, against $144,114,967 on the same date of the previous year.

The consequence of this serious situation began to be felt immediately in unemployment. For the first time in many years it was found necessary to provide against the unrestricted immigration of harvest labourers from the United States. This embargo was lifted in many cases only at the request of the Government Employment Service, with which this department was working in close co-operation. During the winter which followed, the unemployment question became acute, and Immigration Hall No. 2, which has been turned over to the Department of Public Works, was leased to the Unemployment Committee of the city of Winnipeg for housing men temporarily out of work and without means. Our Immigration Hall No. 2 at Edmonton was also loaned to the city of Edmonton for a similar purpose.

ADMISSIONS FROM THE UNITED STATES

During the year, 10,619 immigrants were admitted through the thirty-nine ports in the Western Division, as compared with 18,368 last year—a decrease of 7,749.

CASH, STOCK AND EFFECTS

Owing to the decrease of immigrants coming to the land, there was a decrease in the value of stock and effects brought in by immigrants, but owing to the rigid enforcement of the money regulations there was an increase in their amount of cash, produced at the border, as follows:—

	Amount of Cash	Value of Effects
1921-22	$3,148,853	$ 726,989
1920-21	1,827,479	6,158,231

REJECTIONS ON THE INTERNATIONAL BOUNDARY

The number of persons rejected at border ports was 2,246 as compared with 1,480 last year, or an increase of 766. Of those who were rejected, 123 appealed against the decision; of these appeals 54 were sustained and 69 dismissed.

NON-IMMIGRANTS

The total number of non-immigrants passing through ports along the international boundary of this division for the year, amounted to 471,506, as compared with last year's figures of 530,539.

TOTAL NUMBER OF INSPECTIONS

The following figures show the large percentage of non-immigrants examined, as compared with the immigrants:—

	Number	Percentage
Immigrants admitted	10,619	2.19
Immigrants rejected	2,246	0.46
Non-immigrants admitted	471,506	97.35
Total number of inspections	484,371	

PORT STATISTICS

The following is a statement showing the statistics of admissions, rejections, appeals, non-immigrant inspections, prosecutions, and cash bonds, at each port in this division:—

Ports	No. of Admissions	No. of Rejections	Appeals		No. of Non-Immigrants	No. of Prosecutions	Cash Bonds			
			Sustained	Dismissed			Collected	Refunded	Forfeited	On hand
							$	$	$	$
Bannerman	42	2			1,682					
Big Muddy	27	7			386					
Boissevain	12				215					
Calgary						8	8,500	7,800	500	300
Cardston	2				253					
Carievale				1	240	4	500	500		
Cartwright					824					
Coutts	1,567	384	10	14	17,459	60	2,490	2,390		100
Crystal City	9	2			1,979					
Deloraine	15				337					
E. Poplar River	1				3,647					
Edmonton						1	2,148	1,050		1,098
Emerson	2,559	489	6	4	47,820	7	7,500	6,375	725	300
Ft. Frances	619	293	7	18	229,362	2	1,573	1,423		150
Ft. William	28	8			93					
Glen Ewen					195					
Gretna	260	144			13,144					
Haskett	17				2,031					
Killarney	3				1,019					
Kingsgate	1,972	175	7	5	14,931		1,704	1,600	50	54
Marienthal	3	12			5,562					
Morden	4				211					
Melita					17					
Newgate	136	46			5,059		100	100		
Northgate	53	4	1		364	3				
North Portal	2,893	628	19	18	39,659	46	7,345	6,595	200	550
Pigeon River	3	5			15,284					
Pinhorn	1				152					
Port Arthur	16	17	2	9	4,194	1	300	100	100	100
Rainy River	46	7	1		53,898		70	70		
Roosville	4				4,715					
Snowflake	40	15	1		295					
Sprague	40	7			1,640					
Twin Lakes	15				3,404					
Virden					30					
W. Poplar River	92				686					
Willow Creek	140				564					
Waskada		1			155	1				
Winnipeg							9,560	3,320	700	5,540
	10,619	2,246	54	69	471,506	133	41,790	31,323	2,275	8,192

CASH BONDS

There has been a very large increase in the amount of cash bonds taken up during the year under the provisions of section 33, subsection 13, and this has greatly facilitated the checking of non-immigrants entering and leaving the country. As per the above statement, the following are the total figures for the whole of the western division:—

Cash bonds collected.. .	$ 41,790
Cash bonds refunded..	31,323
Cash bonds forfeited....	2,275
Cash bonds on hand	8,192

During the year, the travelling auditor from Ottawa, together with the division inspector, paid a visit to the principal points in this division and instituted a proper system for the accounting of the moneys received and refunded in connection with cash bonds. The system has been carried out and monthly returns are made to my office showing the amount of money held at each port or agency in the division.

DETENTION BUILDING

There is pressing need for the erection of a new detention building at North Portal and the removal of the present building to the depot at Coutts.

PROSECUTIONS AND FINES

There were 133 prosecutions conducted by officers of this division during the year and of this number convictions were secured in every case; 93 paid fines totaling $3,370, and the remaining 40 were not in a position to pay a fine and were sent to jail in lieu of same. This is a very large increase over last year, when the figures were 65 and 8 the year before.

A large number of these prosecutions took place during the summer, particularly during the month of August, when large numbers of I.W.W's. and other undesirables were being driven out of cities and towns in the United States, and were attempting to enter Canada by beating their way on freight trains and other means of surreptitious entry. With the co-operation of Royal Canadian Mounted Police patrols, many of them were discovered and brought to our inspectors for examination with the result that this action on our part was circulated throughout the I.W.W. and radical press of the United States, thereby having a deterrent effect on the movement.

AUTOMOBILE TRAFFIC

This class of traffic is still on the increase and in the summer months necessitates our inspectors being on duty long hours, particularly on Sundays and holidays. While there has been a decrease in the total number of non-immigrants inspected this year as compared with last year, owing to the falling-off generally in railroad travelling, the following ports on main highways show an increase in the number of non-immigrants:—

	1921-22	1920-21	
Kingsgate	14,931	8,674	Main roads to Banff and mountain resorts.
Twin Lakes..	3,404	1,262	Between Duluth and Port Arthur and Fort William. New "Sunshine" highway.
Pigeon River	15,284	7,849	
Crystal City	1,979	758	Alternate route to "Jefferson" highway.
Gretna	13,979	6,399	
Marlenthal	5,562	2,480	New highway to Regina and Saskatchewan points.

INVESTIGATIONS AND BOARD OF INQUIRY

There continues to be a very marked increase in this branch of the work. During the year, the following investigations and boards have been conducted:—

	Boards	Investigations
In Winnipeg	190	780
By investigating officers from Winnipeg	240	430
" " " " Calgary	267	490
" " " " Edmonton	25	295
Fort Frances	5	110
Fort William	2	86
Port Arthur	9	56
Division inspector	41	39
	779	2,286
Figures for 1920-21	342	1,835
Increase	437	451

The above figures do not include the numbers of boards of inquiry at border ports on persons seeking to enter or land, but are cases where entry has already been gained and the question of remaining in Canada is up for decision.

DEPORTATIONS

The number of deportations effected through this office was 584, compared with 221 last year and 125 the year before. This is an indication of the increased amount of work that has been necessary in the investigations and deportation branch of this division. The nationalities of the persons deported were as follows:—

British	331
United States	190
Italian	1
French	9
Chinese	1
Dutch	3
German	2
Serbian	1
Ruthenian	2
Norwegian	
Swiss	4
Polish	10
Swedish	1
Belgian	1
Austrian	2
Danish	3
Japanese	1
Finnish	2
Luxembourg	8
	581

IMMIGRATION HALLS

The following is a list of the Immigration Halls in the Western Division, together with the number of immigrants who obtained accommodation therein during the year:—

xAthabasca, Alta.	11
Edmonton, Alta.	1,131
Emerson, Man.	47
xEdson, Alta.	21
Grande Prairie, Alta.	82
Grouard, Alta.	86
North Battleford, Sask.	184
North Portal, Sask.	95
Peace River, Alta.	137
xPrince Albert, Sask.	83
Spirit River Station, Alta.	167
Winnipeg, Man.	2,750
	4,823

x Closed from Nov. 15th, 1921, to March 15, 1922.

GRAIN WAREHOUSE, WINNIPEG

The following is a list of exhibits prepared in the grain warehouse and forwarded to our agencies in the British Isles and United States during the year:—

33,661 samples made from the following grains and grasses, namely: wheat, oats, barley, flax, rye, timothy, alfalfa, brome grass, blue joint, red top, clover, vetches, pea vine, millet, canary grass, sweet clover, hemp, sunflowers and corn.
2,675 feet of oat and flax rope.
97 large and half sheaves.
213 cases were made and used in forwarding above to our agents, or direct to fairs in the United States.
93 boxes containing threshed grain of various kinds.
257 crates containing vegetables.
184 school boxes containing grain-in-straw, grasses and samples of threshed grain, also literature descriptive of Western Canada. These were forwarded to schools in the United States upon request.

Considerable care must be exercised in the collection of the various grains, grasses and vegetables for these exhibits and in the packing of the different samples for shipment. Suggestions and criticisms have been invited from Canadian Government agents in the United States and others interested in this work with a view to continued improvement. It is gratifying to be able to state that the reports I have received express only satisfaction with the exhibits prepared.

I also wish to state that the United States press was unstinted in its praise of the exhibits which we prepared and sent to the large United States fairs, particularly those of Tampa, Florida, and Chicago, Illinois. This, of course, is a very good medium of advertising the resources and products of Western Canada.

APPLICATION FOR EMPLOYMENT FROM IMMIGRANTS

A large number of applications from immigrants are received at this office, especially from the new arrivals who are met at the trains by our officers. All such applicants, under the existing regulations, are turned over to the Employment Service of Canada, and all possible assistance and co-operation given by us in securing work for them.

WINNIPEG OFFICE

As a result of the increased amount of investigations, deportations and other work generally, there has been a corresponding increase in the amount of correspondence during the year; 39,057 letters were received as against 34,374 the previous year, and 35,010 were sent out, as compared with 30,635 the previous year.

BRITISH IMMIGRANT CHILDREN

British immigrant children have been inspected and reported on from time to time as requests have been received in this connection.

REPORT OF THE COMMISSIONER OF IMMIGRATION, PACIFIC DIVISION, A. L. JOLLIFFE

During the twelve months under review, there has been a decrease in the total number of persons entering Canada at ports of entry in the Pacific Division, both of the immigrant and non-immigrant classes as compared with the previous fiscal year. The decrease in the number of immigrants admitted is the result of a strict enforcement of the regulations which includes the Order in Council prohibiting the landing of immigrants of the skilled and unskilled labour classes. The policy followed was found to be necessary owing to the industrial and labour conditions which have existed.

Throughout the year numerous industries in the district were generally employing smaller numbers of men than usual, no doubt as a result of the very general economic conditions. During the winter months, particularly, a large number of persons were without employment, and there is no doubt but what the restrictive regulations prevented the situation from becoming worse.

Transpacific travel has been lighter than during the previous year, and the same statement applies to the entry of non-immigrants from the United States.

The total number of immigrants landed was 4,700, as compared with 7,168 for the previous year.

STATEMENT OF ADMISSIONS, REJECTIONS, ETC., AT OCEAN PORTS.

Port	Immigrants		Non-immigrants	Ships Crews	No. of administrative
	Admitted	Rejected	Admitted	Examined	fines applied
Vancouver	1,448	143	12,093	533	4
Victoria	1,020	110	775	331	4

The number of vessels arriving at and departing from Pacific Coast ports is steadily increasing. During the year the crews of 1,687 vessels were inspected by officers of the department. The adoption of the crew manifests now in use has resulted in a more efficient inspection and a greater control over seamen arriving at our ports.

At the twenty-eight border ports in this division, during the year, admissions and rejections were as follows:—

Immigrants admitted	2,232
Immigrants rejected	1,141
Non-immigrants admitted	489,608

On August 22, 1921, the port of Rossland, B.C., was closed. On that date, the Great Northern Railway Company discontinued passenger train service from Northport, Washington, U.S., thus permitting the closing of the Canadian port of entry. The highway traffic to Rossland is now inspected at Paterson, B.C.

PATROL WORK

As the result of reports being received that aliens in considerable numbers were entering Canada surreptitiously in the district west of Huntingdon, officers were assigned to patrol work along the border on several occasions, resulting in a number of arrests being made followed by prosecutions. The steps taken effectually stopped this traffic.

PROSECUTIONS

Informations were laid and prosecutions conducted in twenty-three cases for deliberate violation of the Immigration Act, convictions being secured in each instance. The various sections under which the charges were laid are given below:—

Section 33, subsection 7—Entry by stealth	16
Section 33, subsection 10—Entered as non-immigrants and remained	2
Section 42, subsection 4—Entered after rejection	4
Section 7b, Chinese Immigration Act—Illegally in Canada	1
Total	23

All persons prosecuted were finally deported.

During the year 651 Boards of Inquiry were held in this district as follows:—

Vancouver	342
Victoria	125
Places other than ports of entry	184
Total	651

Of the above, 168 boards were held in the cases of aliens in jails, penitentiaries, mental hospitals, etc.; 279 on passengers applying for admission; 204 in arrest cases. Deportations were effected of 217 persons in the first and last-mentioned classes.

STATEMENT OF ARREST CASES

Disposition	Entered by stealth	Entered as non-immigrant and remained	Undesirable under Sec. 40 of Act	Entered after Rejection
Arrested and deported	61	36	54	13
Arrested and admitted	11	12	4	
Waiting deportation	1	3	4	
Waiting decision on appeal		2	3	
Totals	73	53	65	13

INVESTIGATIONS

The work coming under this classification is increasing each year. At places outside of ports of entry 211 investigations of various kinds were made, and 184 cases heard by special investigating officers. These include the inspection of British immigrant children, investigation of persons recently entering Canada and in difficulties through unemployment or other causes, investigation of settlement arrangements covering persons applying for admission, etc.

Particular attention has been paid to the cases of aliens convicted under the Opium and Narcotic Drug Act. Over 200 Orientals convicted under this Act were examined, and deportation effected in seven cases; the others were found to have acquired domicile.

Investigating officers pay regular visits to jails, penitentiaries, mental hospitals, sanitoria, and other public institutions. All persons other than Canadian citizens and those having Canadian domicile are examined and their cases investigated with a view to effecting deportation where such action is advisable.

DETENTIONS AT OCEAN PORTS

The number of persons detained in immigration buildings for investigation, examination, etc., has decreased somewhat during the past year, as shown in the following statement:—

	1920-21	1921-22
Number detained at Vancouver	15,191	12,864
Number detained at Victoria	3,832	4,074
Number of meals supplied at Vancouver	116,084	120,835
Number of meals supplied at Victoria	14,079	24,878

HABEAS CORPUS

Twenty-eight applications were made for Writs of Habeas Corpus of which three were applied for at Victoria and twenty-five at Vancouver. Writs were refused in eleven cases, granted in five, withdrawn in two, and on March 31, ten cases were still pending before the courts. Of these applications twenty-seven were on behalf of

persons of Chinese origin, and one to secure the release of an East Indian. In view of the granting of writs in five cases, the department decided to appeal in one instance, namely the case of Wong Shee, and the same was argued before the British Columbia Court of Appeals in January. Up to March 31, no decision has been handed down. The ten cases pending will no doubt be decided on the completion of this test case.

All of the applications with two exceptions were for the purpose of obtaining a landing for aliens over the decisions of Boards of Inquiry which had found the applicants to be prohibited immigrants. The two exceptions were applications for writs against decisions under the Chinese Act and were test cases, landings being secured in each case. The Act has since been amended to meet the situation which arose at the time.

CHINESE IMMIGRATION

There has been a decrease in the number of Chinese immigrants admitted to Canada during the year ended March 31, as will appear from the statement given below:—

	1920-21	1921-22
Admitted on payment of tax at Vancouver	650	1,030
Admitted on payment of tax at Victoria	205	429
Admitted exempt at Vancouver	1,255	171
Admitted exempt at Victoria	296	115
Exempt applications rejected at Vancouver	103	234
Exempt applications rejected at Victoria	13	101
Exempt cases admitted on appeal at Vancouver	2	6
Exempt cases admitted on appeal at Victoria	—	1
Paid tax after exempt rejection at Vancouver	82	65
Paid tax after exempt rejection at Victoria	5	30
Persons deported after rejection at Vancouver	41	132
Persons deported after rejection at Victoria	11	95
Persons admitted under bond to other countries	6,897	4,747
Persons admitted on writs of Habeas Corpus	—	3
C.I.9 Registrations at Vancouver	4,166	3,884
C.I.9 Registrations at Victoria	2,576	3,546
Bonds forfeited	$9,000	$4,500

The applications for exempt admission totalled 620, and 54 per cent of these were refused, investigation disclosing the fact that applicants were not entitled to the status claimed. This is the highest percentage of rejections recorded. In a number of these cases deportation was effected.

Repeated attempts were made to bring Chinese labourers to Canada in contravention of the labour exclusion order referred to previously in this report by intending immigrants claiming to be the minor sons of merchants.

The last amendment to the Chinese Immigration Act has effectually stopped the admission of labourers under the status of merchants carrying certificates of identity. An effort was made to secure the entry of forty-two labourers under the guise of clerks and book-keepers shortly after the illegal use of certificates was controlled, but deportation was effected in each case, since which no attempt has been made to bring such persons to Canada in large numbers.

EQUIPMENT AND BUILDINGS

On several occasions during the year, our detention buildings at Vancouver and Victoria were overcrowded, and a further increase in the business at these ports will necessitate additional accommodation.

SESSIONAL PAPER No. 13

REPORT OF THE SUPERVISOR OF THE WOMEN'S DIVISION, MISS M. V. BURNHAM

A most satisfactory year has been completed by the Women's Division, particularly in view of the fact that this is the first year in which there has been a permanent staff of women officers. The aim of the Women's Division is to improve methods in connection with the immigration of women. Having an accurate knowledge of conditions throughout Canada, this division hopes to secure better selection of women immigrants in Great Britain, more efficient assistance in travelling, and better settlement arrangements in Canada.

WOMEN OFFICERS IN GREAT BRITAIN AND CANADA

In Great Britain there are three principal women officers, stationed at London, Liverpool and Glasgow. There is also an assistant at London. These officers interview prospective women immigrants, listen with patience to their stories, give them advice and sympathy, and in many cases make decisions for these women which will affect the course they pursue in the future. The women officers carry on extensive correspondence in connection with various cases in order to obtain testimonials, references and general information regarding applicants. The work in Great Britain is becoming more and more important, and the women officers write with great enthusiasm of the work they are able to accomplish in many cases. All four officers are Canadians and as they have the Canadian point of view their advice to intending settlers is invaluable. In addition to interviewing women at the Canadian Emigration offices, these officers are present at the sailing of all steamships carrying unaccompanied women to Canada in order that they may interview and assist the women as they go on board. Our officers also prepare a list of the names of the unaccompanied women to hand to the steamship conductress, notifying her of any cases requiring special assistance or attention. These lists are carefully checked over by the steamship conductress and verified during the voyage.

When a ship docks in Canada, a principal woman officer of the Department of Immigration is there to meet it. She interviews the steamship conductress, receiving from her the list of names of women and learning of any special cases. The woman officer then assembles the unaccompanied women on the boat, and conducts them to the examination room. After they have passed through the medical and civil inspection, she again assembles them, gets their luggage checked, sees that they are provided with food for the journey, adjusts any difficulties there may be in connection with tickets, and sees that they are put on the right trains. A Government conductress is then sent out with the train, proceeding as far inland as is considered necessary. It is not possible, of course, to conduct every girl to her destination, but in every case her train connections are looked up for her and usually a wire is sent by the conductress to the Travellers' Aid or some other welfare worker at the point to which the girl is destined. These conducted parties consist of houseworkers coming to seek employment, houseworkers who have already secured employment, and women coming to join relatives or to be married. Women travelling with small children also receive special attention from the conductress.

According to cable advices received here immediately after the sailing of each boat for Canada, 7,242 unaccompanied women came to this country during the fiscal year just ended. Of this number 4,719 came to join relatives or to be married; 2,262 came to assured employment, and 261 came seeking employment in housework. Therefore, approximately 65 per cent of the unaccompanied women coming to Canada during the past year were joining relatives or being married, 31 per cent had assured positions waiting for them, and only 4 per cent were seeking employment in housework. It is felt by many people in Canada that more houseworkers should be coming to this country in view of the great shortage here at present. However, the depart-

ment is endeavouring to secure the type of girl who will settle here and become a good Canadian, and to discourage the migration of girls who will ultimately become public charges or unsatisfactory citizens. Conditions in the United Kingdom have changed greatly since the war and one hears on every side of the difficulty of securing experienced houseworkers there.

The Government conductresses reported to this office on the following number of special cases assisted by them during the year: 1,947 women, 733 children. In many instances, these reports were forwarded by this division to our offices in Great Britain or to the Society for the Oversea Settlement of British Women, in London, England.

PORT WORK IN CANADA

The principal woman officer at the port in Canada meets all steamships, adjusts transportation and other difficulties of unaccompanied women and confers with the representatives of the various welfare organizations with regard to special cases. This officer is called in on Boards of Inquiry affecting women immigrants, and visits women in medical and civil detentions. The woman officer is also notified when detained persons are released and assists the women with arrangements for their journey. Women detained thus feel that they have a woman to whom they can appeal, and with whom they can discuss their affairs. The fact that several of our women officers have a knowledge of languages other than English has proved a great assistance in the work at the port.

STEAMSHIP CONDUCTRESSES

The steamship companies are co-operating with the Department of Immigration in its policy of assisting unaccompanied women coming to Canada. During the past year, the Canadian Pacific steamships have all carried conductresses. The White Star-Dominion and the Cunard lines have been using chief stewardesses for this work, but we have been notified by both lines that arrangements are already under way to appoint regular conductresses. We wish to emphasize particularly the importance of this work on the steamships for the protection of women and children travelling alone, not only at points of departure and arrival but also during the journey.

CANADIAN COUNCIL OF IMMIGRATION OF WOMEN

The Canadian Council of Immigration of Women consists of representatives of the following national organizations:—

Young Women's Christian Association of Canada.
National Council of Women.
Women's Christian Temperance Union of Canada.
Imperial Order of Daughters of the Empire.
Canadian Council of Agriculture (Women's Section).
Federated Women's Institutes of Canada.
Social Service Council of Canada.
Great War Veterans' Association of Canada.
Trades and Labour Congress of Canada.
National Committee on Mental Hygiene.
Catholic Women's League of Canada.
Women's Missionary Society of the Methodist Church.
Women's Missionary Society of the Presbyterian Church.
Women's Auxiliary to the Missionary Society of the Church of England.

There is also on this council one representative appointed by each of the provinces, with the exception of Prince Edward Island.

A special meeting of the council was held in April, 1921, and the annual meeting which should have taken place in November of that year was postponed and finally held in March, 1922. At these meetings, reports of the work of the Women's Division and of the hostels were received from the supervisor of the Women's Division. Grants to the various hostels were recommended to the minister, as in previous years. Matters of policy affecting women immigrants were discussed and certain recommendations made to the department. All the organizations represented on the council have assisted the Women's Division in many ways, and have further pledged their support and assistance in our work.

CANADIAN WOMEN'S HOSTELS

In 1919, Canadian Women's Hostels were established and are now operating under the supervision of the Women's Division though managed by local committees, at the following addresses throughout Canada:—

Nova Scotia—163 Young avenue, Halifax; Superintendent, Mrs. Seely.
New Brunswick—35 Union street, St. John; Superintendent, Miss Hoyt.
Quebec—31 Drummond street, Montreal; Superintendent, Miss C. Louttit.
Ontario—72 Carlton street, Toronto; Superintendent, Miss S. Anderson.
Manitoba—130 Austin street, Winnipeg; Superintendent, Miss Mulheron.
Saskatchewan—1839 Lorne street, Regina; Superintendent, Mrs. I. Bayne.
Alberta—120 Fourth avenue West, Calgary; Superintendent, Miss G. Markle.
British Columbia—The Y.W.C.A. at 997 Dunsmuir street, Vancouver, serves as a Canadian Women's Hostel.

These hostels all receive grants from the Dominion Government, and, in addition, an allowance to cover twenty-four hours' free accommodation for immigrant women seeking employment in housework. In the western hostels, forty-eight hours is allowed, on account of the lengthy train journey from the port.

The character of work done at each hostel varies according to locality. In Montreal, a large amount of the work consists in providing meals and accommodation for women proceeding to the West. For instance, in one month 449 passed through, while only 19 were registered as staying in Montreal.

In Toronto, the work is slightly different, the hostel there acting as a distributing centre, co-operating with the Government Employment Service in the placing of girls. The records show that a very large number of girls come back to this hostel for their holidays, for meals on their days off, etc. There are probably more overseas girls in Toronto than in any other centre in Canada.

Reports from the Winnipeg, Regina, and Calgary hostels show that excellent work is being done for girls arriving in Canada from overseas, which amply justify any assistance that the Government may give them. Not only houseworkers, but newly arrived settlers are accommodated in the western hostels. This has special reference to the housing of soldier settlers' wives who come into these centres to take short lecture courses.

FOLLOW-UP WORK

Follow-up work among women immigrants is done in three ways:—

(1) Through the Chaplains at the port, to whom special cases are referred upon arrival.
(2) Through the hostels, in co-operation with the churches and local welfare organizations.
(3) Through the woman investigation officer of the Department of Immigration, headquarters at Ottawa, in connection with houseworkers.

Extensive records of follow-up work are kept by the Women's Division. The hostels send in a monthly statement, giving the list of newly-arrived immigrant girls cared

for during that time. Notes of changed addresses and information on special cases are also forwarded by the superintendents of the hostels.

Some valuable follow-up work is being done through the welfare organizations in the various cities, who report direct to this office numerous cases coming under their care.

The Women's Division automatically receives the names of houseworkers who have not come in touch with the hostels, on account of having secured definite situations before coming to Canada. In all such cases, follow-up letters are sent out to the employers. During the last seven months of this year, over 700 of these letters have been written, and the replies indicate that a large majority of this number are still in housework and giving satisfaction. Of this number forty-one have married. Only twenty-one replies stated that the girls were not giving satisfaction. The following are samples of replies which have been received:—

> "Miss P.....was successful within two weeks of her coming to Canada to secure a position as cook-housemaid to Mr. and Mrs. C..... where she has settled down, feeling quite happy and comfortable, and has the satisfaction of knowing her work is appreciated. As Mr. and Mrs. C..... intend leaving this month to reside in the States, it will be necessary for my step-sister to be on the lookout for another position, which she should have no difficulty in getting. Thanking you for your kindly enquiries."
>
> "*Re* your letter inquiring for Miss F..... I am pleased to say she has adapted herself splendidly to the Canadian life and is leaving me next week to get married to a friend whom she met whilst doing duties in hospital overseas and is going to reside in B....., Manitoba. Thanking you,"

Arrangements are now being made with the Department of Health to supply them with the names of women coming out for the express purpose of being married, in order that that department may send them helpful literature. We have found that a great many women coming to be married are going to outlying districts, where they will not be able to get in touch with local organizations, or even churches, and it was felt that this arrangement with the Department of Health would be of great assistance to many of our new settlers.

PROVINCIAL ACTIVITIES AND ADVANCED PASSAGES

Ontario and Saskatchewan are the only two provinces that are at present advancing fares to houseworkers coming from Great Britain. Saskatchewan is unique in being the only province that has a woman officer in Great Britain for the sole purpose of selecting suitable houseworkers for that province. One-half of her salary is paid by the Provincial Government and one-half by the Dominion Government. A most satisfactory type of girl is coming to Saskatchewan, and during the present year 178 houseworkers have been brought out under the assisted passage scheme. These Saskatchewan parties are all conducted by a Government conductress from the port of landing in Canada to Regina.

SOCIETY FOR THE OVERSEA SETTLEMENT OF BRITISH WOMEN

The Society for the Oversea Settlement of British Women (which is the women's branch of the Oversea Settlement Committee in Great Britain) is in very close touch with the Women's Division of the Department of Immigration on all matters of policy concerning women settlers. The Women's Division makes investigations of settlement arrangements for women coming out under the auspices of the S.O.S.B.W. for the following purposes:—

(*a*) To be married.
(*b*) To assured employment.
(*c*) Seeking employment.

These investigations alone entail a great deal of correspondence.

It is customary for the S.O.S.B.W. to send out their women in large parties, on an average of one a month during the summer season. Previous to sailing, excellent lists of information regarding these parties are supplied to the women officers of this department in Great Britain and Canada, and the S.O.S.B.W. also sends a special conductress for the ocean voyage. These parties are conducted on trains in Canada by Government conductresses, and are accommodated at the Canadian Women's Hostels. Reports on many cases are forwarded to the general secretary of the society in England, after the girls have been a short time in Canada.

The S.O.S.B.W. sends a large number of girls out on assisted passages. If for any reason they fail to make repayments, we undertake to investigate their financial circumstances, which is an assistance to the S.O.S.B.W. in collecting these outstanding debts. These investigations are necessary, not only in the case of houseworkers, but also for settlers. Sometimes through illness or misfortune girls find it impossible to meet their obligations. In such cases, the report of a reliable officer makes it possible for the S.O.S.B.W. to adjust matters.

RED CROSS NURSERIES

In co-operation with the Department of Immigration, the Canadian Red Cross Society has undertaken a very important work at the ocean ports of Quebec, St. John, and Halifax. Nurseries have been established at each of these ports, with one nurse overseeing the work of all three. After tired mothers and children have passed through inspection, they find waiting for them a large, airy rest-room with rows of small white cots. Sympathetic nurses are in attendance, and with them the mothers leave their children, while they go off to attend to tickets, luggage, etc. Free milk and biscuits are given to the children, and literature which will be of assistance to the mothers is distributed. The nurses keep a sharp lookout for women and children who they consider might require medical assistance later. In many cases, the mothers tell the nurses all their troubles. Quietly the nurse makes a note of such a case, later forwarding the information to the Red Cross headquarters in Toronto. From there, a notification is sent to the nurse of the district into which the settler is going, and a few days after the arrival of the family, the mother receives a call from a representative of the Red Cross, and is given advice about looking after her small flock. Thus the welfare of mothers and children arriving in Canada is looked after from the very beginning.

The nurseries are always open and British and foreign families are urged to make use of them. All who have passed through appreciate this work, as the nursery is found to be a haven of rest at a busy port.

REPORT OF THE SUPERVISOR OF JUVENILE IMMIGRATION, G. BOGUE SMART

The immigration of juveniles from the British Isles is an ascertained and indisputable success in respect to the quality of the boys and girls who have been sent to Canada. One has only to review the progress of the movement during the past twenty or thirty years to conclude, if unprejudiced, that as a purely voluntary and philanthropic effort on behalf of orphaned and needy children it possesses all the essential elements of a great national and economic enterprise, the value and importance of which can hardly be questioned.

As the activities of this branch of immigration during the year ending the 31st March, now under review, are somewhat similar to those of the preceding years, the lines of former annual reports may necessarily follow certain beaten tracks.

The direct object of this work is to give the children a start on farms and interest them in agriculture, and thus supply the farmers of Canada with the help they so urgently need. The boys are to be found almost exclusively on the land but the girls are located in both town and country.

Before coming to Canada the children receive a preliminary training and education. Many of the older boys are taught lighter branches of farm work, and the girls are instructed in domestic pursuits.

The emigration of children from Great Britain to Canada is promoted by a number of highly accredited British organizations, all of which have at very considerable financial outlay, established well equipped Receiving and Distributing Homes for the children in Canada. These institutions are located in the provinces of Nova Scotia, Ontario, Quebec and Manitoba, and maintain control over the children as legal guardians until they have reached an age of full responsibility.

The interests of the public are further guarded by an effective and recurrent Government inspection of each boy and girl until it reaches its 19th year, a portion of the cost of which inspection is borne by the British Government under arrangement to that end.

These junior immigrants receive their pre-emigration training in two classes of homes and schools—those under State and private control respectively. No distinction is made between any of the children when they come to Canada—both being on equal footing and the same treatment is accorded to all.

The reports of the department for the past year, with remarkably few exceptions, show that these children are treated very kindly. In the majority of instances, employers treat them with quasi parental solicitude and in this regard their friends in the Homeland need have no apprehension as to their care.

The duties incident to my office, therefore require a close study of child life and labour from its many aspects, particularly in relation to (1) physical, mental and moral qualities and personal characteristics, (2) habitual conduct during apprenticeship, and (3) capabilities.

The reports for the past year show the result of careful selection with a view to the suitability of these young people for Canadian citizenship. In general intelligence and alertness, less than 5 per cent were below the average, and apart from these exceptions they compared favourably with other children.

The great majority of these new arrivals settle down in their new homes with commendable adaptation, free from personal care, and soon become familiar with their new life and occupation and show much personal interest in their surroundings. This is evident as they speak of "our crops," "our horses," "our cattle," and the chance "our colt" has of winning a prize at the agricultural show, etc.

On March 31, 1922, 2,133 boys and 992 girls were under departmental supervision and their distribution by provinces is shown by the following table:—

Province	Boys	Girls	Totals
Quebec	287	100	387
New Brunswick	91	22	113
Nova Scotia	46	41	87
Prince Edward Island		2	2
Saskatchewan	13	13	26
Alberta	20	13	33
Manitoba	28	13	41
British Columbia	15	13	28
Ontario	1,633	775	2,408
Totals	2,133	992	3,125

During the past fiscal year, 1,961 children from British training homes and schools were individually inspected and reported upon by officers of the department. This number included 1,361 boys and 600 girls respectively, of ages varying from 3 to 18 years.

SUMMARY OF INSPECTION

Homes and situatioos—	
In very good foster homes and situations	1,934
In good foster homes and situations	25
In unsatisfactory homes and situations	2
State of children's health—	
Enjoying good health	1,880
Enjoying fairly good health	79
Unsatisfactory	2
General progress at home and at school—	
Making good progress	1,784
Fairly good progress	168
Unsatisfactory progress	9
Character and behaviour—	
Very good	1,780
Good or fairly good	176
Unsatisfactory	5
Children under school age	627
Wage earning	1,234
Adopted	26
Engaged in other occupation than farm work	21
Apprenticed to a trade and self supporting	3
Restored to and residing with their parents	17
Returned to England	20
Total annual wage paid to above children (boys and girls)	$123,840
Removed to the United States	8
Serving a term in gaol	1
Boys and girls (18 years or over) whose inspections were completed and who are managing their own affairs	167
Homes and situations—	
Very good	166
Fairly good	1
Unsatisfactory	—
State of health—	
Enjoying good health	162
Fairly good health	4
Unsatisfactory health	1
General progress—	
Making very good progress	160
Making fairly good progress	7
Making unsatisfactory progress	—
Character and behaviour—	
Very good	158
Fairly good	8
Unsatisfactory	1
Total annual wage of above boys and girls	$26,904
Total number of visits made during the year including recurrent visits considered advisable in children's interest	2,243

In the foregoing are included: A boy farming on shares with the owner of a farm, several boys attending agricultural and other colleges, and a number studying for the ministry and under training for missionary work.

The children are not only considerately treated, but all of them become members of the families to which they are sent and participate in the comforts and pleasures of the family circle. This is indicative of the pleasant relationship existing between the children and those with whom they are living.

A farmer in Western Canada wrote in 1914: "Willie is a real good lad. He has done so well that I have sent him to the Provincial Government Agricultural College for the winter and am paying his expenses." Four years later the gentleman wrote: "Willie now owns quite a number of mares. I look upon him as a son." Christmas, 1921, he writes again: "Willie is married and is manager of a large farm in British Columbia. There never was a better adopted boy and I think of him as a son."

The following refers to a girl who came to Canada in 1914 at the age of 9 years:—

Ethel has resided at S. ever since she came to Canada and has given excellent satisfaction. "If she chooses to leave my home," her mistress stated, "she will go from it with a good recommendation. She would find no difficulty in finding employment where she is known. She is devoted to her Sunday school and has a diploma for regular attendance. Her needlework does her credit—a bright, neat, good-tempered girl."

Another interesting report from our lady inspector is that in regard to R. G., age 16, a Sheffield girl:—

> "I met Rose before reaching her home and at once made her acquaintance. We took a walk together and chatted as we went. In manner she is composed and self sufficient. Her outlook upon things generally is broader than is usual in a child of her age. Her natural ability ought to bring her success."

Extract from Toronto *Globe* regarding this girl:—

> *"Baby Rescued but Home Goes*
> *"Doctor's House Burned*
>
> "Hamilton, March 1.—The residence of Dr. H. was destroyed by fire this afternoon with a loss of about $20,000. Dr. H. was down in the city at the time, and his wife was ill in bed and their child was in the cradle. When the fire was discovered, Mrs. H. used a patent extinguisher, and did not give up the unequal fight until she was rather badly burned.
>
> "Miss G., a girl of 16 years of age, who was at dinner when the fire was discovered, battled her way through smoke and fire, and rescued the baby, carrying it out in its cradle. The cradle was the only piece of furniture saved."

Walter C., age 15, came to Canada at the age of 8 years.

> "For the past seven years, Walter has been the only child in this home. Having lived in a good atmosphere, he has formed no bad habits. To the great satisfaction of his guardian he is this year showing a decided liking for school. He is more than an average boy, he is extra good."

William D., age 13, came to Canada in 1912. His employer writes:—

> "Canada seems entirely sufficient for his happiness. He is so occupied with the present he almost never speaks of the life he has left behind him. He has every promise of being very adaptable in disposition. He is our sixth (old country) boy, and if he takes care he is going to be the luckiest of them all. I like his face. It is intended that he shall have more time at school than is compulsory by law."

It has been correctly stated that all over the country these boys are to be seen growing up and developing into useful, prosperous farmers and God-fearing members of society. Many are surprised at their success. "I can't seem to believe it; I hadn't a penny or the hope of it when I went to the training home in England seven years ago," remarked a boy.

The position of those managing their own affairs is in itself sufficient evidence of the national and economic value of the juvenile immigration movement. Scores of these young fellows by their industry have become prominent farmers and are now themselves the employers of lads who came to Canada from the same training schools as they did; others are still working as farm hands, and are saving their earnings in order to acquire farms of their own.

The following are a few illustrations which might very properly be mentioned:—

A. R. is making final payment on his farm, which will leave it unencumbered by mortgage. His operations for the year netted him $2,600. He has added to his possessions a motor-car costing $1,000.

F. C. has been able to purchase the farm he has rented for several years.

M. M. has married and is to move on to a good farm in the spring.

A. W., recently married, is established on the farm of his late employer.

It would not be unreasonable to suppose that there are some who, after serving their apprenticeship on a farm, feel that they are not adapted for agricultural occupations and endeavour to follow work more congenial, as for instance:—

R. J. is a railroad locomotive inspector, and W. H is manager of an express company at an important station.

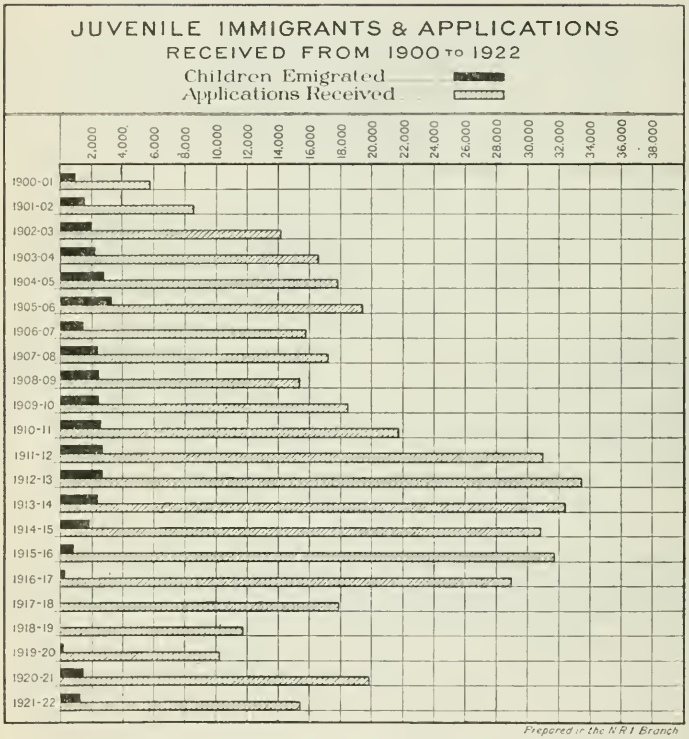
In nearly every college and university in Canada, some of these erstwhile immigrants are studying to fit themselves for teaching, and have become quite prominent in their profession, and hold responsible positions in educational affairs. One has become the principal of a college, and another a public school inspector.

The following table sets forth the number of juveniles brought to and settled in Canada by various organizations during the past fiscal year, and the number of applications received by these agencies for boys and girls within the same period:—

Organizations	Total Number of Children brought to Canada during 1921-22			Applications received for children during 1921-22		
	Boys	Girls	Total	Boys	Girls	Total
Dr. Barnardo	241	133	374	4,011	6,612	10,623
Macpherson-Birt	89	31	120	595	450	1,045
Catholic Emigration Association	196	29	225	600	1,125	1,725
National Children's Home and Orphanage	56	3	59	464		464
Fegan	51		51	450		450
Quarrier	43	5	48	202	184	386
Church of England Society	26		26	*		
Salvation Army	122	128	250	173	183	356
Middlemore	39	16	55			282
O.S.B.W.		3	3			
"The Coombe," Hespeler, Ontario. (A. C. Pullam)				40		40

*Not reported.

About 75 per cent of the children were boys and 25 per cent were girls, of ages varying from 20 months to 18 years. The demand for both boys and girls is always far beyond the supply, and the ability of those promoting the movement to extend their operations to more adequately meet the unabated demands for this class of farm and domestic help.


JUVENILE IMMIGRANTS & APPLICATIONS
RECEIVED FROM 1900 TO 1922
Children Emigrated
Applications Received
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
22,000
24,000
26,000
28,000
30,000
32,000
34,000
36,000
38,000
1900-01
1901-02
1902-03
1903-04
1904-05
1905-06
1906-07
1907-08
1908-09
1909-10
1910-11
1911-12
1912-13
1913-14
1914-15
1915-16
1916-17
1917-18
1918-19
1919-20
1920-21
1921-22
Prepared in the N.R.I. Branch

Every year for practically fifty-four years organized parties of boys and girls have been brought to Canada by philanthropic organizations, some of whom are still carrying on the work. The following is a statistical history of the growth of the movement:—

	Year	Children Immigrated
Miss Macpherson and Mrs. Birt, London and Liverpool (Canadian Headquarters, Marchmont Home, Belleville, Ont.	1868 to 1924	13,976
Miss Rye and Church of England, Niagara-on-Lake, Ont., and Sherbrooke, Que.	1868 to 1921	3,766
Mr. (now Sir) J. T. Middlemore, Fairview, Halifax, N.S.	1873 to 1921	4,915
The National Children's Home and Orphanage (formerly Dr. T. Bowman Stephenson) Hamilton, Ont.	1874 to 1921	2,761
Mrs. Bilbrough-Wallace (Marchmont Home, Belleville, Ont.	1878 to 1915	5,529
Cardinal Manning (Ottawa and Montreal)	1880 to 1888	1,403
Dr. Barnardo, Toronto, Peterborough and Winnipeg, Man	1882 to 1922	25,456
Mr. J. W. C. Fegan, Toronto	1884 to 1922	2,798
Mr. Wm. Quarrier, Brockville, Ont.	1890 to 1922	4,074
The Catholic Emigration Association and amalgamated societies, St. Georges Home, Ottawa	1897 to 1922	5,998
The Salvation Army	1905 to 1922	820
Minor Agencies	1897 to 1922	4,920
Total		76,416

RECEIVING AND DISTRIBUTING HOMES

There are thirteen homes for the reception and distribution of the children when they reach Canada. These centres are an absolutely requisite feature of the work, and are regarded as employment bureaux for juvenile farm and domestic help. These headquarters have been established at no inconsiderable cost and their maintenance involves a large annual expenditure.

The superintendents in charge of these institutions have been specially trained for work on behalf of children and their influence on the children has been of great benefit and encouragement to the boys and girls who are now holding positions on their own account in Canada.

The affairs of the children are vested in and controlled by the respesentatives in Canada of the societies in Great Britain through whose efforts the children are sent out, thus placing them in *loco parentis* to their proteges during their term of supervision or until they attain their nineteenth year. It is to these sources application should be made for the services of the children.

The history, records and progress of the children in Canada are to be found at these headquarters which are under the inspection of the department.

These institutions fulfil the requirements of both the Imperial and Federal Governments whose desire is to safeguard the welfare of the children and to see that they are given a fair start when they settle in our midst.

I believe that in no country in the world is a deeper or more practical interest taken in the education, personal security and social uplifting of children who through no fault of their own have been placed in unfortunate circumstances, both by the voluntary unloosing of the purse strings of her private citizens, and the benevolence of the State, than in Great Britain. I think that it is realized that the care bestowed, and the large expenditure made in this connection, have from an economic point of view alone, been a wise and profitable investment. One need only look through the various avenues of activity to find therein persons of prominence who are indebted in a very large measure to the help bestowed through the channels referred to for their success in life.

To Canadians in their efforts to build up a strong, healthy and industrious nation, the early life and training of these children are subjects of importance, seeing

that so many of these emigrated are destined to share the responsibilities of citizenship in this Dominion. That the people of Canada fully appreciate the importance to this country of securing contingents of well trained boys and girls is made clear by the fact that while thousands have completed their apprenticeship on farms in various parts of Canada, each succeeding year brings a greater demand to fill the vacancies left by those who have gone forth to do for themselves.

Until recent years Canada was the only overseas Dominion to which this branch of immigration to any extent was directed, but since 1918, or the close of the war period, the Australian and New Zealand Commonwealths, recognizing the advantage of such a movement of young people from the motherland have been conducting an active propaganda in the British Isles with a view of diverting a large proportion of this class of emigration to their respective dominions.

Sir John Kirk, of London, England, who recently died at Westcott, Surrey, was known as the friend of poor children. Sir John was secretary of the Shaftesbury Society, an eminent authority on philanthropic and charitable work, and a strong advocate of juvenile immigration to Canada. Many boys, now prosperous Canadian citizens, owe their start in life to his efforts. After visiting this country and studying the conditions here, Sir John wrote:—

> "As an advocate of emigration and as one who has seen the benefits arising from the presence of English children in Canada, I endorse what the commission says on the subject. I would urge the necessity of sending the children over to Canada as soon as possible, because the sooner they get into the Canadian atmosphere the better it is for Canada and for them."

The various organizations have exercised proper care in selecting homes and situations for their children and very few boys or girls, comparatively, have had to be returned to the Receiving Home as unsuitable or unsatisfactory during the year.

As farm apprentices they have long since proved desirable. This is shown by the fact that there are hundreds of farmers in the province of Ontario who for upwards of thirty-five years have been their employers. The result of inspections has established the fact that the young people adapt themselves more easily than other newcomers to their conditions and surroundings, and after a few months' experience, the average boy needs no apology as a general farm hand in comparison with any other boy who has been brought up on a farm. When he finishes his apprenticeship, he is in a position to demand and secure employment at a man's wage.

Frequent inquiries have reached me during the past year in regard to the actual work a farmer expects one of these boys to perform. The following published report from a visitor who had called specially to see the boy in question may be taken as a typical illustration of a lad's daily routine life on a Canadian farm:—

> "The evening I called, the farmer and his brother were detained in the harvest field through a breakdown of the self-binder, and the missus appealed to Jack as to who would milk the cows, and how the stock, etc., were to be fed. 'Well ma'am,' said Jack, 'you and I'll do the milking, and I'll have the stock all fed by the time the men get in for supper.'
>
> "I watched their start at milking the cows and followed the proceedings right on. It was amazing to see Jack as soon as the milking was over, using the separator, then away up to the loft to fork enough hay down to feed all the stock and then distribute it round to the different racks 'just the way the boss does it,' as he chirped to me.
>
> "Next he hustled round and gave the calves their usual supply of separated milk—then he fed the pigs—'such young Turks,' he commented, 'and so greedy,' as they nearly bowled the little fellow over when he arrived with their food. Then he bedded down nice clean straw for the horses—and finally

placed two buckets of water—or rather some prepared drink—ready for the horses when they came in from the harvest field.

"I congratulated Jack, not only on the businesslike alacrity with which he did 'the chores' (somewhat over an hour), but on his thoughtfulness for his master and the horses, in having buckets ready filled when they arrived in the stable. Jack smiled beyond description as he greeted the boss with 'the chores are all done!' and the tired worn-out men were much relieved and pleased to hear the welcome news from this little chap, only four months out from England, and who that evening excelled himself beyond all that the men had ever anticipated from the boy."

The deep interest taken in the welfare of these children by the various organizations and others in the old country has prompted me to include in this report a statement showing in a general way the various services which are rendered by a boy apprentice in Canada, as such a statement will undoubtedly prove of interest.

At the age of 10 to 12 years a boy begins his farm apprenticeship by making himself generally useful to the farmer's wife, doing little odd bits of work, such as carrying water and wood to the house and similar so-called "chores." He of course attends school during autumn and winter and early spring months. From the age of 12 to 13 his duties and responsibilities naturally increase, as he has now got his bearings and becomes familiar with his surroundings. He has also learned the technical names of farming implements and the daily progress of the farm, and has been "handed over" the work of feeding the calves, night and morning. From the age of 13 to 15 he takes care of the young cattle and pigs, and also cleans the stables, and between the ages of 15 to 17, in addition to the work just mentioned, he does his share of the milking or operating the milking machine, and helps to look after the horses, and has been taught to handle and drive a pair of "quiet working horses." With these horses he is given his first lesson in ploughing and is assigned a piece of stubble ground to practice on. He does some seeding. He also does his share in the cultivation of the potato and root crop. In harvest he drives the mower and hay-rake—work which usually falls to the lot of a boy. He drives the hay-loader or helps to build the loads of hay and operates the hay-fork, shocks grain and stores sheaves in the mow. In the late autumn he is picking and packing apples, harvesting and loading potatoes, turnips and other field root crops and helps with the fall ploughing when possible. From his seventeenth to twentieth year he should be found to be doing practically a man's work. If he is an ambitious boy, he should save during the years of his apprenticeship sufficient to enable him to take a short course at a dairy school or agricultural college during the winter months, as many old country boys have actually done with great credit to themselves.

The expense of outfitting and equipping the children and the rates now charged for their transportation are practically 50 per cent higher than in previous years. The organizations being purely philanthropical and dependent upon the generosity of the public, have been obliged to reduce the number of their parties to a very considerable extent. Besides this the financial strain in Great Britain has considerably limited the support which in former years was relied upon. Many erstwhile juvenile immigrants, who have become prosperous Canadians, recognizing the condition of affairs at home, have shown a desire to stand by those who have helped them when they were needy and unbefriended children in their motherland and have been generously contributing toward the cost of emigrating other boys to this country, and in this connection it might be mentioned: On 1st January, Mr. J. W. C. Fegan received the following cablegram from Toronto:—

"Your sons across the sea send forty-six hundred and fifty dollars as an expression of love and gratitude."

DOMINION OF CANADA

ANNUAL REPORT

OF THE

DEPARTMENT OF INDIAN AFFAIRS

FOR THE

YEAR ENDED MARCH 31

1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
J. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander-in-Chief of the Dominion of Canada.

May it Please Your Excellency:

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Indian Affairs for the fiscal year ended March 31, 1922.

Respectfully submitted,

CHARLES STEWART,
Superintendent General of Indian Affairs.

Ottawa.

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PART I

REPORT

OF THE

DEPUTY SUPERINTENDENT GENERAL OF INDIAN AFFAIRS

FOR THE YEAR ENDED MARCH 31, 1922

REPORT OF THE DEPUTY SUPERINTENDENT GENERAL

OTTAWA, August 15, 1922.

Hon. CHARLES STEWART,
Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the report of the Department of Indian Affairs for the year ended March 31, 1922.

Last year we published in the report a short history of the department. This year, as an appropriate sequence, we submit the following brief historical account of the treaty relations of the British and Canadian Governments with the Indians, from the earliest times down to the present date. This subject is considered timely as the past year has seen the completion of probably the last treaty that will be entered into with Canadian Indians, Treaty No. 11 covering the MacKenzie River District and surrounding parts.

OUR INDIAN TREATIES

From the time of the first British settlement in New England, the title of the Indians to lands occupied by them was conceded and compensation was made to them for the surrender of their hunting grounds. The Crown has always reserved to itself the exclusive right to treat with the Indians for the surrender of their lands, and this rule, which was confirmed by the Royal Proclamation of October 7, 1763, is still adhered to.

In 1670, during the reign of Charles II, instructions were given to the governors of the colonies, which, among other matters, directed that Indians who desired to place themselves under the British should be well received and protected.

For nearly a century the Indians most intimately associated with the English were the Five Nations, living in what is now the state of New York. These were known as the "Iroquois League" and at first comprised the Mohawks, Oneidas, Cayugas, Onondagas and Senacas. In 1715 the Tuscaroras from North Carolina were admitted to this league, which from that time has been known as the "Six Nations".

There are still of record numerous agreements and treaties, dating back as far as the year 1664 and made by the British with the Indians of New England, while Canada was still under French Government.

QUEBEC

Unlike the British, the French did not admit that the Indians had any title to lands but claimed them for the Crown by right of discovery and conquest. Reserves were, however, set apart from time to time for the use of the Indians and these were confirmed by the British in Article XL of the Articles of Capitulation signed at Montreal on September 8, 1760, which reads, in part, as follows:—

> "The Savages or Indian Allies of his most Christian Majesty, shall be maintained in the lands they inhabit, if they choose to remain there; they shall not be molested on any pretence whatsoever, for having carried arms and served his most Christain Majesty."

In later years other reserves were set apart for Indians in the province of Quebec under authority of an Act of the province of Canada dated August 20, 1851 (14 & 15 Victoria, Cap. 106).

MARITIME PROVINCES

Two of the reserves in Prince Edward Island were grants from private owners and the third was purchased by the Dominion Government for the Indians. In New Brunswick and Nova Scotia some reserves were set apart by the Provincial Governments before Confederation and others have been purchased for the use of the Indians by the Dominion Government since that date.

ONTARIO

Practically the whole of Upper Canada was surrendered to the Crown by treaties made by the Government with the Indians, reserves of sufficient extent being set apart for their use at points chosen by the Indians. In addition to the indigenous tribes, it was necessary to provide lands for the Six Nations Indians who came to Canada after the American revolution to compensate them for the loss of their lands in the Mohawk Valley. Reserves were set aside for them on the Bay of Quinte and on the Grand river.

Up to the year 1818 the compensation for the lands, whether in goods or money, was paid to the Indians at the time of treaty but since that date it has taken the form of an annuity.

Previous to the year 1829, the custom was to pay these annuities in goods of the same description as the annual presents, by which practice the Indians, having already received an adequate supply of clothing, had a strong inducement to dispose of the remainder for any object of more immediate want or attraction, among which liquor ranked foremost.

In 1829, Sir John Colborne, being desirous of checking the evils of this system and to promote the settlement and civilization of the Indians, obtained permission from the Secretary of State to apply the annunities towards building houses and purchasing agricultural implements and stock for such members of the several tribes, interested in the payments, as were disposed to settle in the province; and from that time the issue of goods in payment of annuities ceased. The change seems at first to have been unwillingly adopted by the Indians but was later generally approved of. Within two or three years the settlements at Coldwater, the Narrows, St. Clair and Munceytown were established by means of these funds and later several other settlements were formed or enlarged

In consequence of this change it became necessary to credit each band, yearly, with the amount of its annuity and to direct the expenditure of the money for its benefit. This has led to the admission of the Indians to a voice in the disbursement of their funds. The Government has not abandoned control but still exercises a restraint on improvident or improper expenditure and directs undertakings for their advantage, but the general practice is for the Indians to determine among themselves how the money is to be spent, sending a resolution of their council to the department covering each item.

There have been many surrenders of lands for the purpose of sale or lease, the proceeds of which are placed to the credit of the Indians, and there have been others for railway purposes, roads, churches, schools, etc., but the principal surrenders were made under Treaty and cover practically the whole province.

OLD UPPER CANADA TREATIES

By treaty of May 15, 1786, the Ottawa and Chippewa Indians surrendered Anderdon township and part of West Sandwich, Lambton county; also Bois Blanc island in the Detroit river.

By treaty of May 19, 1790, the Ottawa, Chippewa, Pottawatomie and Huron Indians surrendered parts of Kent, Elgin and Middlesex counties, containing about 2,000,000 acres of land, in consideration of goods to the value of £1,200 currency delivered at the time of treaty.

By treaty of December 7, 1792, signed at Navy Hall, the Mississagua Indians surrendered Norfolk and Haldimand counties and parts of Lincoln, Wentworth, Brant, Oxford, Middlesex, Elgin and Welland counties, containing about 3,000,000 acres of land.

This surrender was taken to correct a defect in one taken on May 22, 1784.

The consideration in this case was £1,180, 7s. 4d. sterling.

By treaty of September 7, 1796, the Chippewa Indians surrendered part of Middlesex and Oxford counties, on the north side of the River Thames, in consideration for which they were paid £1,200, Quebec currency, in goods, at the time of treaty.

By treaty of September 7, 1796, the Chippewa Indians surrendered part of Lambton and Kent counties, in consideration for which they were paid £800 currency, in goods at the time of treaty.

By treaty of August 21, 1797, the Mississagua Indians surrendered part of Nelson township, in Halton county, containing about 3,450 acres in consideration of goods to the value of £75 2s. 6d. delivered at the time of treaty.

By treaty of May 22, 1798, the Chippewa Indians surrendered part of Simcoe county, including Penetanguishene harbour and islands therein, for the sum of £101 paid to them in goods at the time of treaty.

By treaty of June 30, 1798, the Chippewa Indians surrendered St. Joseph, Caribou or Payentanassin island, between Lakes Huron and Superior—one hundred and twenty miles in circumference—in consideration of goods, to the value of £1,200, Quebec currency, delivered to them at the time of treaty.

By treaty of September 11, 1800, the Ottawa, Chippewa, Powtawattamie and Wyandott Indians surrendered part of Essex county, containing 2,412 acres and a roadway, in consideration of the payment of £300 in goods delivered at the time of treaty.

By treaty of August 1, 1805, the Mississagua Indians surrendered Etobicoke, York and Vaughan townships and parts of King, Whitechurch and Markam townships, York county.

This was in confirmation of a surrender signed on September 23, 1787, when "divers goods and valuable consideration was given." Ten shillings was paid at the time of this confirmation.

By treaty of September 6, 1806, the Mississagua Indians surrendered part of Peel and Halton counties, to the extent of about 85,000 acres, in consideration of goods to the value of £1,000 9s. 1½d. delivered at the time of treaty.

By treaty of the 17th and 18th of November, 1815, the Chippewa Indians surrendered part of Simcoe county containing about 250,000 acres, in consideration of £4,000 paid to the Indians at the time of treaty.

By treaty of August 6, 1816, the Mississagua Indians surrendered part of Thurlow township, Hastings county, at the mouth of Moira river, Bay of Quinte, containing about 428 acres, in consideration of £107 paid to the Indians at the time of treaty.

By treaty of October 17, 1818, the Chippewas of lakes Huron and Simcoe surrendered part of Gray, Wellington, Dufferin and Simcoe counties, containing about 1,592,000 acres, in consideration of an annuity of £1,200 payable in goods.

By treaty of October 28, 1818, the Mississagua Indians surrendered parts of Wellington, Dufferin, Peel, and Halton counties to the extent of about 648,000 acres, known as the Mississagua Tract, in the Home District. The consideration in this case was an annuity of £522 10s. to be paid in goods.

By treaty of November 5, 1818, the Chippewa Indians surrendered Ryde township and parts of Muskoka, Morrison, Draper and Oakley, Muskoka district, part of

Ontario county; Victoria and Peterborough counties; and parts of Durham, Haliburton, Hastings and Northumberland counties, containing about 1,951,000 acres, in consideration of an annuity of £740, province currency, payable in goods.

By treaty of February 28, 1820, the Mississagua Indians surrenderd part of Toronto township, Peel county, containing about 2,000 acres in consideration of £50 currency paid at the time of treaty.

By treaty of July 8, 1822, the Chippewa Indians surrendered part of Middlesex, Lambton and Kent counties, containing about 580,000 acres, in consideration of an annuity of £2 10s. in goods to each man, woman and child of the Chippewas then inhabiting and claiming the said tract of land, and who shall be living at the respective times appointed for the delivery of the said merchandise, during their respective lives and to their posterity for ever, provided that the number of annuitants should not at any time exceed 240, being the number of persons then composing the said nation claiming and inhabiting the said tract.

By treaty of July 20, 1820, the Mohawks of the Bay of Quinte surrendered about 52 square miles, in consideration of an annuity of £2 10s. for each man, woman and child but not to exceed the sum of £450 a year.

By treaty of November 28, 1822, the Mississagua Indians surrendered parts of Carleton, Lanark, Renfrew, Frontenac, Addington and Hastings counties, containing about 2,748,000 acres, in consideration of an annuity of £2 10s. in goods, to each man, woman and child, provided the number of annuitants shall not at any time exceed 257, being the present number of persons entitled to the same.

By treaty of July 10, 1827, the Chippewa Indians surrendered parts of Waterloo, Wellington, Huron, Lambton, Middlesex and Oxford counties and all of Perth county, containing about 2,182,049 acres, in consideration of an annuity of £1,100 payable in goods.

This was in confirmation of a treaty signed by them on April 26, 1825, but giving the area surrendered more exactly.

By treaty of August 9, 1836, the Ottawa and Chippewa Indians surrendered their claim to Manitoulin island to be used as a reserve for all Indians.

By treaty of October 25, 1836, the Moravian Indians surrendered their lands on the north side of the River Thames, containing about 2,500 acres, in consideration of an annuity of $600.

The annuities granted to the Indians under the Old Upper Canada treaties were capitalized some time previous to confederation and the interest placed each year to the credit of their respective accounts and distributed to the Indians entitled to them semi-annually with the interest derived from sale of their lands, timber, etc.

By treaty of September 7, 1850, at Sault Ste. Marie, the Ojibeway (or Chippewa) Indians surrendered the land on the north shore of lake Superior, including the islands, from Batchawana bay to Pigeon river, and inland to the height of land, except reserves mentioned, in Algoma and Thunder Bay districts, in consideration of an immediate payment of £2,000 and an annuity of £500. If the territory ceded should produce a sufficient amount the annuity to be increased to £1 currency for each individual, provided the number of annuitants shall be two-thirds of their present number (which is 1,240) This increase of annuity was authorized by Order in Council of July 22, 1875, and arrears of increase paid for the years 1853, 1854, 1856, 1872, 1873 and 1874.

By treaty of September 9, 1850, the Ojibwa (or Chippewa) Indians surrendered the eastern and northern shores of lake Huron, including the islands, from Penetanguishene to Batchawana bay, and inland to the height of land, except reserves mentioned, in Muskoka, Parry Sound, Nipissing and Algoma districts, in consideration of an immediate payment of £2,000 and an annuity of £600. If the territory ceded should produce a sufficient amount the annuity to be increased to £1 currency for each individual provided the number of annuitants shall be two-thirds of their

present number (which is 1,422). This increase of annuity was authorized by Order in Council of July 22, 1875, and arrears of increase paid for 1873 and 1874.

Treaty 9

In the years 1905 and 1906 Treaty Commissioners Duncan C. Scott and Samuel Stewart (for the Dominion) and Daniel George MacMartin (for the Province of Ontario) negotiated a treaty with the Ojibwa and Cree Indians north of the height of land and a surrender was obtained of a tract of land described in the treaty, containing about 90,000 square miles, under the following conditions: Lands to be reserved for the use of the Indians to the extent of one square mile for each family of five. A present of $8 to be made to each Indian at the time of treaty. An annuity of $4 for each Indian and schools to be established for the Indians where necessary.

This treaty was signed at:—

Osnaburg, on July 12, 1905.
Fort Hope, on July 19, 1905.
Martins Falls, on July 25, 1905.
Fort Albany, on August 3, 1905.
Moose Factory, on August 9, 1905.
New Post, on August 21, 1905.
Abitibi, on June 7, 1906.
Matachewan, on June 20, 1906.
Mattagami, on July 7, 1906.
Flying Post, on July 16, 1906.
New Brunswick House, on July 25, 1906.
Long Lake, on August 9, 1906.

The annuities granted to the Indians under the Robinson Treaties and Treaty No. 9 are distributed yearly to the Indians entitled to them.

MANITOBA AND THE NORTHWEST TERRITORIES

By treaty of July 18, 1817, the Chippewa or Saulteaux and the Killistine or Cree Indians surrendered a large tract of land in the Red River district, now in Manitoba, for the Selkirk Settlement, in consideration of an annuity of 100 pounds of tobacco to be delivered to each of the two nations. The Earl of Selkirk had purchased the rights of the Hudson Bay Company to this land on June 21, 1811, for the consideration of ten shillings and certain agreements and understandings contained in an indenture. In 1836 the Hudson Bay Company bought back the whole tract from the heirs of the Earl of Selkirk for the sum of £84,000, the rights of colonists, who had purchased land between 1811 and 1836 being respected.

This tract of land was afterwards included in Treaty No. 1, 1871.

By Treaty No. 1, dated August 3, 1871, Treaty Commissioner Wemyss M. Simpson obtained a surrender from the Chippewas and Swampy Crees of a tract of land (described in the treaty) reserving 160 acres, for each family of five Indians, in several localities in consideration of an annuity of $3 for each man, woman and child, Her Majesty agreeing to maintain a school on each reserve for the use of the Indians.

By Treaty No. 2, dated August 21, 1871, Treaty Commissioner Wemyss M. Simpson obtained a surrender from the Chippewa Indians of a tract of land (described in the treaty) reserving certain lands for the use of the Indians to the extent of 160 acres for each family of five persons, in consideration of an annuity of $3 for each man, woman and child, Her Majesty agreeing to maintain a school on each reserve for the use of the Indians.

By Order in Council of April 30, 1875, Treaties Nos. 1 and 2 were amended raising the amount of annuity from $3 to $5 with an additional $20 per annum to each chief and giving a suit of clothes every third year to each chief and headman.

An acceptance of this amendment was signed by the Indians on August 23, 1875.

By Treaty No. 3 (Northwest Angle), dated October 3, 1873, the Treaty Commissioners, Hon. Alexander Morris, Lt.-Governor of Manitoba and the Northwest Territories, J. A. N. Provencher and S. J. Dawson, obtained a surrender from the Saulteaux and Ojibwy Indians, of a tract of land (described in the treaty) comprising an area of about 55,000 square miles, reserving certain lands for the use of the Indians, to the extent of one square mile for each family of five, in consideration of a present of $12 for each man, woman and child and an annuity of $5 for each Indian. Her Majesty further agreed to maintain a school for the Indians on each reserve and to supply the Indians with $1,500 worth of ammunition and twine (annually), also implements and cattle. And that the Chiefs be paid a salary of $25 a year and the sub-chiefs (three to each band) $15 a year. The chiefs and sub-chiefs were to receive a suit of clothes once every three years and a medal and flag to be given to each chief.

On June 9, 1874, the Indians of Lac Seul, Trout and Sturgeon Lakes signed an adhesion to Treaty No. 3 (Northwest Angle).

By Treaty No. 4 (the Qu'Appelle Treaty), dated September 15, 1874, the Treaty Commissioners, Hon. Alexander Morris, Lt.-Governor of Manitoba and the Northwest Territories, Hon. David Laird, Minister of the Interior, and W. J. Christie, obtained a surrender from the Cree and Saulteaux Indians of a tract of land (described in the treaty) upon the same terms as Treaty No. 3, with the exception that four sub-chiefs were allowed to each band and the annual grant for ammunition and twine was $750.

The following adhesions were signed to Treaty No. 4, at:—

Fort Ellice, on September 21, 1874.
Swan Lake, on September 24, 1874.
Qu'Appelle Lakes, on September 8 and 9, 1875.
Fort Pelly, on August 24, 1876.
Fort Walsh, on September 25, 1877.

By Treaty No. 5 (Lake Winnipeg Treaty), dated September 20 and 24, 1875, at Berens River and Norway House, the Treaty Commissioners, Hon. Alexander Morris and Hon. James McKay, obtained a surrender from the Saulteaux and Swampy Cree Indians of a tract of land (described in the treaty) containing about 100,000 square miles.

The terms of this treaty are similar to those of Treaty No. 3.

The following adhesions to Treaty No. 5 were signed by:—

Chief Thick Foot's Band on September 28, 1875.
Bloodvein, Big Island, Dog Head and Jack Head bands on July 26, 1876.
Grand Rapids, on August 4, 1876.
Black River Band, on September 27, 1876.
Pas, Cumberland, and Moose Lake bands on September 7, 1876.
Split Lake, on June 26, 1908.
Nelson House, on July 13, 1908.
Norway House, on July 8, 1908.
Cross Lake, on July 15, 1908.
Fisher River, on August 24, 1908.
Oxford House, on July 29, 1909.
Gods Lake, on August 6, 1909.
Island Lake, on August 13, 1909.
Deer Lake, on June 9, 1910.
Fort Churchill, on August 1, 1910.
York Factory, on August 10, 1910.

By Treaty No. 6, dated August 23 and 28 and September 9, 1876, at Fort Carlton, Fort Pitt and Battle River, the Treaty Commissioners, Hon. Alexander Morris, Hon. James McKay and Hon. W. J. Christie, obtained a surrender from the Plain and Wood Cree Indians of a tract of land (described in the treaty) containing about 121,000 square miles.

The terms of this treaty are similar to those of Treaty No. 3.

Adhesions to Treaty No. 6 were signed by the Cree Indians at Fort Pitt on August 9, 1877, and August 19, 1878.

By the Crees, at Blackfoot Crossing and Bow River on September 25, 1877.

By the Stony Plain Indians on August 29, 1878.

By the Wood Crees at Carlton on September 3, 1878.

By Crees (Michel Calistrois) on September 18, 1878.

By Little Pines band on July 2, 1879.

By Big Bears band on December 8, 1882.

Robert and William Charles bands signed an adhesion to Treaty No. 6 on February 11, 1889, at Montreal Lake and surrendered lands (described in the adhesion to treaty) containing about 11,066 square miles.

The Waterhen River band signed an adhesion to Treaty No. 6 on the 8th of November, 1921.

By Treaty No. 7 (Blackfoot)dated September 22, 1877, at Blackfoot Crossing, the Treaty Commissioners, Hon. David Laird and James F. McLeod, obtained a surrender from the Blackfoot, Blood, Peigan, Sarcee and Stony Indians of a tract of land (described in the treaty).

The terms of this treaty are similar to those of Treaty No. 3.

An Adhesion to Treaty No. 7 was signed by Chief Three Bulls on behalf of his band on December 4, 1877.

Treaty 8

A Treaty was made on June 21, 1899, by the Treaty Commissioners, Hon. David Laird, J. A. J. McKenna, and J. H. Ross, with the Cree, Beaver and Chipewayan Indians by which the Indians surrendered a tract of land (described in the treaty) on the following conditions:—

Lands were to be reserved for the use of the Indians to the extent of 160 acres for each Indian.

Each Chief was to receive a present of $32, each Head-man $22 and each Indian $12 at the time of Treaty.

Each Chief was to receive an annuity of $25, each Head-man $15 and each Indian $5.

Each Chief was to receive a medal and a flag, and each Chief and Head-man a suit of clothes every third year.

School teachers were to be provided for the Indians and implements, cattle, ammunition and twine were to be supplied.

This treaty was signed at:—

Lesser Slave Lake, on June 21, 1899.
Peace River, on July 1, 1899.
Vermilion, on July 8, 1899.
Fond du Lac, on July 25 and 27, 1899.
Dunvegan, on July 6, 1899.
Fort Chipewayan, on July 13, 1899.
Fort McMurray, on August 4, 1899.
Wapiscow Lake, on August 14, 1899.

Adhesions to Treaty No. 8 were signed before Treaty Commissioner J. A. Macrae by the Beaver Indians of Upper Peace River on May 30; the Sturgeon Lake band

on June 8; the Slave Indians of Upper Hay River on June 23; and by the Great Slave lake Indians (south shore) on July 25, 1900.

The Slaves and Sicanees Indians of Fort Nelson, B.C., signed an adhesion to Treaty No. 8 before Commissioner H. A. Conroy on August 15, 1910.

Treaty 10

In the year 1906 Treaty Commissioner J. A. J. McKenna negotiated a treaty with the Chipewayan and Cree Indians by which they surrendered a tract of land (described in the treaty) containing about 85,800 square miles, upon terms similar to those of Treaty No. 8.

This treaty was signed at:—

Isle-a-la-Crosse, on August 28, 1906.
Lac du Brochet, on August 19 and 22, 1906, and
Canoe Lake, on September 19, 1906.

Treaty 11

By Treaty No. 11, dated June 27, 1921, Commissioner H. A. Conroy obtained the surrender from the Indians of a tract of land in the Mackenzie River District (described in the treaty) containing about 372,000 square miles. The terms of this treaty are similar to those of Treaty No. 8, and it was signed by the Indians at:—

Simpson, on July 11, 1921.
Wrigley, on July 13, 1921.
Norman, on July 15, 1921.
Good Hope, on July 21, 1921.
Arctic Red River, on July 26, 1921.
McPherson, on July 28, 1921.
Rae, on August 22, 1921.

The annuities granted by treaty to the Indians of Manitoba and the Northwest Territories (now Alberta and Saskatchewan and the Northwest Territories) are distributed yearly to those entitled to them.

HEALTH SUPERVISION

The health of the Indians has been normal during the past year. The department provides medical attention for the Indian bands in all parts of the Dominion, and all possible effort is being made to preserve and improve the physical wellbeing of the native races.

Recently there has been inaugurated a policy with a view to better medical and prophylactic supervision for the western Indians. Within the last few months there have been appointed a number of travelling nurses whose duty it is to inspect the Indian schools and to go about among the homes on the reserves giving assistance and advice. These nurses work in co-operation with the Indian agents and departmental medical attendants, and much is being accomplished in the way of improving the health conditions of the Indians. Simple talks on sanitation, diet, and home-making are given, and many of the Indian women gratefully accept the advice of the nurses regarding the care of their children. Thorough examinations are made and treatments given when required. One great drawback is the fact that the older Indians are inclined to place their faith in the Indian medicine men, and refuse treatment by white doctors. This difficulty, however, is being gradually overcome, and it is found that the hospitals which are maintained on various Reserves are becoming more freely used by the Indian people.

Tuberculosis has always been one of the greatest enemies of the Indians. The educational work now being carried on should have great effect in lessening the ravages of this disease. Not only are the Indians being instructed on questions of health by the nurses who periodically visit the reserves, but they are given continuous advice, assistance and treatment by field matrons employed by the department for their benefit. In addition to their duties as nurses, these field matrons are endeavouring to encourage the Indian women and girls to make their homes more like those of white people. Instead of thinking only of daily needs, they are being taught to provide for the future: for instance, they are instructed in methods of canning fruit and vegetables for the winter months, and they are encouraged to cultivate gardens, the department supplying the necessary seed. It is felt that by such simple instruction in the art of living, coupled with the care given by the Indian agents and medical attendants, the health of the Indian people is being materially improved.

AMENDMENTS TO THE INDIAN ACT

The provisions respecting the enfranchisement of Indians were modified so as to place the initiative with the Indian concerned by the following amendment:—

The Indian Act following Amendment:—

"107 (1) Upon the application of an Indian of any band or upon the application of a band on a vote of a majority of the male members of such band of the full age of twenty-one years at a meeting or council thereof summoned for that purpose according to the rules of the band and held in the presence of the Superintendent General or of an officer duly authorized to attend such council, by the Governor in Council or by the Superintendent General, a Board may be appointed by the Superintendent General to consist of two officers of the Department of Indian Affairs and a member of the band to which the Indian or Indians under investigation belongs, to make inquiry and report as to the fitness of any Indian or Indians to be enfranchised. The Indian member of the Board shall be nominated by the council of the band, within thirty days after the date of notice having been given to the council, and in default of such nomination, the appointment shall be made by the Superintendent General. In the course of such inquiry it shall be the duty of the Board to take into consideration and report upon the attitude of any such Indian towards his enfranchisement, which attitude shall be a factor in determining the question of fitness. Such report shall contain a description of the land, occupied by each Indian, the amount thereof and the improvements thereon, the names, ages and sex of every Indian whose interests it is anticipated will be affected, and such other information as the Superintendent General may direct such Board to obtain."

INDIAN SOLDIER SETTLEMENT

Part III of the Indian Act passed at the Session of 1919 confers upon the Deputy Superintendent General all the powers of the Soldiers' Settlement Board in dealing with Indian returned soldier settlers.

In purchasing a location on a reserve for an Indian returned soldier settler, the Deputy Superintendent General acquires for such settler merely the improvements and usufructuary interest, the land itself remaining part of the common property of the band, from which it cannot be alienated, except as provided by the Indian Act. In other words, the department, as a matter of law and quite apart from any considerations of policy, cannot acquire or convey the fee to lands on a reserve.

The verbiage of the statute, however, was not sufficiently full on these points, and in consequence considerable alarm was occasioned among the Indians, who feared that the band title to the lands might be prejudicially affected. In order to allay these misgivings, the verbiage has been amplified and clarified by the following amendment of 1922:—

The Indian Act as amended, 1922:—

"197. The Deputy Superintendent General may acquire, for a settler who is an Indian, land as well without as within an Indian reserve, and shall have authority to set apart for such settler a portion of the common lands of the band without the consent of the Council of the band. In the event of land being so acquired or set apart on an Indian reserve, the Deputy Superintendent General shall have power to take the said land as security for any advances made to such settler, and the provisions of the Soldier Settlement Act, 1919, shall, as far as applicable, apply to such transactions. It shall, however, be only the individual Indian interest in such lands that is being acquired or given as security, and the interest of the band in such lands shall not be in any way affected by such transactions."

The Section repealed:—

"197. The Deputy Superintendent General may acquire for a settler who is an Indian, land as well without as within an Indian reserve, and shall have authority to grant to such settler a location ticket for common lands of the band without the consent of the council of the band, and, in the event of land being acquired or provided for such settler in an Indian reserve, the Deputy Superintendent General shall have power to take security as provided by the Soldier Settlement Act, 1919, and to exercise all otherwise lawful rights and powers with respect to such lands notwithstanding any provisions of the Indian Act to the contrary."

INDIAN SOLDIER SETTLEMENT

The work in connection with the Indian Soldier Settlement during the past year has been more to consolidate and establish on a firm basis those loans already made, rather than making new loans. Great care has been exercised in granting loans as is evidenced by the fact that while 361 applications for loans have been received only 190 loans have been approved, and the settlers are meeting their obligations quite satisfactorily.

The total amount expended to March 31, 1922, amounts to $368,117.54, made up as follows:—

Permanent Improvements—	
Acquiring land, fencing, erecting buildings, etc..	$210,198 47
Stock and Equipment—,	
Purchase of horses, cattle, implements, seeds, etc..	126,870 69
Repayments to Soldier Settlement Board and refunds..	24,967 68
Expenses of administration in the field..	6,080 70
Total..	$368,117 54
Repayments made by Indian settlers amounted to..	$ 22,106 24
Made up as follows—	
On permanent improvements..	5,673 20
On stock and equipment..	11,677 73
Interest charges..	4,755 31

The season of 1921 was a particularly poor year for farmers, and the Indian settlers found it discouraging work, but have persevered and this year promises to repay them for their efforts during the trying circumstances of the past.

The failure of last year's crops necessitated the furnishing of a large quantity of seed and feed this spring, but the encouraging outlook and the confidence displayed by the Indians augurs well for the success of the Indian farmers.

A new and more efficient system of accounting in connection with the Soldier Settlement work was inaugurated with the transfer of the work to the Accountants' Branch in February last.

RECORDS BRANCH

The keeping of the records in this department is a work of special importance, particularly in view of the mass of interesting and valuable historical documents and papers that have accumulated on the files since the first Indian office was established more than one hundred and fifty years ago.

In the very early days there was no registration system of any kind. Letters were received and answered, folded and put away in bundles in order of date. Sometimes there was a draft of a reply and sometimes a note on the letter that a reply had been sent on such a date but that was all.

At the end of the eighteenth and the beginning of the nineteenth century the department was divided, the office of the Superintendent General and the secretary being at Montreal and that of the Deputy Superintendent General and the assistant secretary at Fort George (Niagara).

Here at Niagara is the first mention of a records room, in a complaint made in the year 1800 that it had no desk, no shelf and no fuel.

During the war of 1812-14 the Indian records were, for safekeeping, transferred from Niagara, on the frontier, to York, but on the 27th of April, 1813, the Americans raided York; all the papers were taken and no account has since been had of them.

Following the abolition of the office of Superintendent General in 1828 the secretary of the department was moved from Montreal to Quebec in 1830 and back to Montreal in 1840.

This division of the department, the moving of its offices and the changes of administration—sometimes under civil government and sometimes under military control, now under the Governor General's secretary, now under the Crown Lands Department and now under the Secretary of State, has left confusion in the mass of records.

Sir John Johnson was appointed Superintendent General of Indian Affairs in 1782, but up to the year 1821 there had been no letter book or letter register kept in his office at Montreal.

The present series of letter books commenced in 1829 and a few of the earlier volumes are not indexed.

A commission was appointed to "investigate into the business, conduct and organization of the various public departments of the province of Upper Canada" and among other recommendations in their report, dated the 1st of February, 1840, we read:—

> "Your Committee suggests that in the conduct of his office, the Chief Superintendent should be obliged to keep
>
> "1st. A Book in which shall be entered all the correspondence of the department, with an alphabetical index."

This was the origin of our letter registers.

At first each letter was registered and filed separately. Then, for convenience, letters on the same subject were tied together and a note made in the register to that effect.

The present system of having all letters on each subject with the draft replies placed in order of date on one file with an endorsed back, first came into use about 1870.

During the past year there were received and registered about 71,668 letters, vouchers and returns and there were about 23,600 letters and telegrams sent out. These figures, of course, do not include circular letters, acknowledgements, cheque letters or receipts. There were 1,212 registered letters and 1 460 unregistered money letters received.

In addition to this there have been numerous searches made during the year, among the old records both in the department and in the Public Archives, necessitated by request for historical data and for the settlement of claims and disputes.

EDUCATION

A total of 321 Indian schools, of all classes, were in operation during the year, namely, 250 day, 55 boarding and 16 industrial. In the tabular statements, in part II of this report, will be found a list of these schools, giving the reserve, agency and province and the enrolment in each case.

As compared with the previous year, there is a decrease of three day schools and three boarding schools, and an increase of one industrial school. In the boarding school class, the Port Simpson Girls' Home and the Sarcee Boarding School were closed, the former having been burnt and not yet rebuilt, and the latter is now being used for hospital purposes. A new industrial school was erected at Fraser Lake, which replaces the boarding school formerly conducted at Stuart Lake, which latter has been closed. Several day schools were closed owing to lack of attendance or inability to secure teachers, while several schools in this class, which had been closed for some time, were reopened, and new schools started at several points.

The total enrolment for the year was 13,021 pupils; 6,605 boys and 6,416 girls. This, as compared with the preceding year, shows an increased enrolment of 463 pupils. There was an enrolment of 7,990 in the day schools, 3,234 in the boarding schools and 1,798 in the industrial schools.

The average attendance during the year at these three classes of schools was 8,664, which is slightly less than that for the preceding year, when it was 8,723.

The percentage of attendance of the number enrolled during the year was 66.46, a decrease of 3 per cent.

In addition to the above there are about 130 Indian children, the greater number of whom are orphans, being provided for and educated in public and private residential schools throughout the Dominion, besides a number who are attending high schools.

The 321 schools, comprising day, boarding and industrial, in operation during the year, were conducted under the following auspices: Undenominational, 50 day and 1 industrial; Roman Catholic, 85 day, 32 boarding and 9 industrial; Church of England, 70 day, 15 boarding and 3 industrial; Methodist, 40 day, 1 boarding and 3 industrial; Presbyterian, 4 day and 7 boarding, and the Salvation Army, 1 day school.

Qualified teachers with professional training are engaged whenever it is possible to obtain them. In the older settled portions of the different provinces, the greater number of the teachers are so qualified. In the schools situated on the more remote reserves, it is difficult to secure teachers with certificates. Many of our teachers who have not professional qualifications have, however, long experience and are meeting with a great measure of success in Indian school work.

The Indian schools in Ontario, Quebec, Nova Scotia and Prince Edward Island are inspected semi-annually by the provincial, separate and public school inspectors under

arrangements with the Department of Education of each province. In New Brunswick and British Columbia, Indian schools are inspected by officials appointed by the department. Arrangements have recently been completed with the Provincial Departments of Education for the provinces of Manitoba, Saskatchewan and Alberta to utilize the services of their school inspectors in inspecting Indian schools. In addition to this inspection, the schools are under the supervision of the different Indian agents, who are required to make regular inspections and reports.

The course of study is that prescribed for the provincial public and separate schools of the province in which the Indian schools are located, and is strictly followed.

Our school buildings, in most cases, compare favourably with white schools similarly situated, also in the work performed in the classroom and in the equipment provided.

New modern, up-to-date and thoroughly equipped buildings were completed during the year, as follows: An industrial school with accommodation for 150 children at Fraser Lake, B.C., boarding schools with accommodation for 80 children each at Sechelt, B.C., and Gordon's Reserve, Saskatchewan. The erection of a new building was commenced at the Coqualeetza Institute, Sardis, B.C.

There is land for farming and gardening purposes provided at practically all the residential schools. The pupils are thus enabled to receive a general knowledge of agriculture which should be of great benefit to them after leaving school.

The granting of assistance to graduates to encourage farming has been maintained. Upon leaving school a male ex-pupil may be given a grant of cattle, horses, implements or building material. A female ex-pupil may be given a sewing machine or household equipment. During the past year a number of girls and boys, ex-pupils, have been assisted to the extent of $3,288.69.

The expenditure for Indian education from parliamentary appropriation during the year amounted to $1,363,419.71. The following statement will show the expenditure for the fiscal year ended March 31, 1922, for Indian education from parliamentary appropriation:—

STATEMENT OF EXPENDITURE FOR THE YEAR 1921-1922

—	Day Schools	Boarding Schools	Industrial Schools	Ex-pupils	Salaries and Travel	Tuition	Freight, Express, etc.	Miscellaneous	Total
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	23,696 62	60,761 31	72,977 63	382 95	274 75	4,862 39	344 06	3,960 23	167,259 94
Quebec	32,701 18	.....	.....	.....	.....	1,040 78	149 45	5,955 73	39,847 14
Nova Scotia	7,063 03	.....	.....	.....	.....	2,462 61	3 75	848 87	10,378 26
New Brunswick	9,923 80	.....	.....	.....	597 74	383 99	10 50	2,799 43	13,715 46
Prince Edward Island	1,065 98	.....	.....	.....	.....	.....	.....	29 94	1,095 92
Manitoba	23,932 39	92,010 71	20,877 76	961 80	.....	242 76	1,206 92	8,040 02	147,272 36
Saskatchewan	19,367 34	254,187 70	42,558 18	623 48	1,080 00	100 00	1,734 08	3,128 03	322,778 81
Alberta	2,928 81	103,512 77	39,989 70	821 05	141 50	235 62	1,266 15	2,155 00	151,353 60
British Columbia	36,335 40	133,043 69	300,439 43	499 41	3,257 65	39 00	688 46	4,340 62	478,613 66
North West Territories	901 11	17,969 43	.....	.....	.....	.....	155 80	114 20	19,143 54
Yukon	2,248 50	9,546 31	.....	.....	.....	.....	91 65	44 56	11,931 02
Total	160,167 16	671,031 92	476,842 70	3,288 69	5,354 64	9,367 15	5,650 82	31,716 63	1,363,419 71

In addition to the above the various bands of Indians whose funds are sufficient to meet the outlay, contributed the sum of $56,456.99 towards the payment of teachers' salaries, general expenses and the maintenance of school buildings on their reserves. For the fiscal year ended March 31, 1922, the amounts so contributed have been as follows:—

Account No.	Band	Interest	Capital
		$ cts.	$ cts.
1	Batchawana Band	293 79	
2	Chippewas of Beausoleil	1,148 59	
3	" Nawash	2,821 28	
4	" Rama	1,257 21	
5	" Sarnia	875 92	
6	" Saugeen	2,331 46	
7	" Snake Island	370 90	
8	" Thames	1,414 40	
9	" Walpole Island	331 86	5,902 95
10	Fort William	119 36	
12	Garden River Band	1,852 21	
14	Nipissing Band	753 09	
15	Manitoulin Island (Unceded)	1,994 93	
17	Mississaugas of Alnwick	1,200 43	
18	" Credit	1,037 50	
19	" Rice Lake	329 85	
20	" Mud Lake	254 83	
22	Mohawks of Bay of Quinte	2,700 27	
23	Moravians of Thames	1,417 19	
28	Ojibwas of Missauga River	34 75	
30	Parry Island Band	626 34	
32	Serpent River Band	659 50	
33	Six Nations of Grand River	17,791 82	—
34	Shawanaga Band	1,041 50	
49	Timiskimany Band	62 00	
50	River Desert	677 52	
79	Chippewas of Kettle & Stoney Point	1,666 83	
82	Whitefish River Band	871 92	
182	Dokis Band	311 00	
246	Sheguiandah	675 25	
247	Sheshegwaning	1,321 28	
248	South Bay Band	703 88	
249	Sucker Creek Band	535 75	
251	West Bay Band	1,078 63	
		59,554 04	5,902 95

The amount expended from interest represents current expenses, salaries of teachers and minor repairs, while the expenditure from capital was an outlay for a new two-roomed day school building and teacher's living quarters combined.

BUILDINGS, BRIDGES, DRAINAGE, ETC.

Buildings.—The Indian boarding schools at Alberni and Fraser Lake were completed, and water supply and sewerage systems were installed for these buildings.

A new boarding school was erected on the Gordons Reserve, Sask. A portion of the new Indian boarding school at Coqualeetza has been built. Forty houses and forty stables were erected on the Blackfoot Reserve for the Indians. Minor repairs have been carried out in many of the schools and in cases the sanitary conditions have been improved.

BRIDGES, DRAINAGE, IRRIGATION SYSTEMS AND ROADS

The following works have been carried out during the current fiscal year on the following Indian reserves in the Dominion of Canada:—

Bridges and Culverts.—Repairs to bridges and culverts have been performed on the following reserves: Timiskaming, Que.; Oka, Que.; Stella, B.C.; Thunderchild, Sask.; and New Credit, Afton, Walpole Island, Ont.

Drainage System.—Drainage systems of various types have been constructed on the following reserves: New Credit, Cape Croker, Fort William, Six Nations, and Moravian in Ontario, and Caughnawaga in Quebec.

Irrrigation Systems.—Irrigation systems have been constructed or are being gradually extended on the following reserves: Lytton, B.C.; Blackfoot, Alta.; Cayoosh, B.C.; and Thunderchild, Sask.

Road Work.—Building of roads, improvements, and maintenance of main roads, have been performed on the following reserves: Moravian, Parry Island, Rama, Sarnia, Whitefish, Stony Point, Sheshegwaning, Garden River, Cape Croker, Alnwick, West Bay, Christmas Island, Fort Frances, Middle River, Whycocomagh, Eskasoni, in Ontario; Norway House, Man.; Sucker Creek, B.C.; Doncaster and Caughnawaga, Que.

Wharves.—Important repairs have been made to the wharf at Bella Bella, B.C., and a water supply has been provided for the Lytton Indian Village, B.C.

SURVEYS

The following is a statement of principal surveys performed in connection with the work of the Surveys Branch during the fiscal year which ended March 31, 1922:—

NOVA SCOTIA

On account of alleged trespass the north and east boundaries of the Millbrook Indian reserve were retraced.

A portion of this reserve, known as the Creelman property, was subdivided.

The Lingan Road property in the Sydney Indian reserve was subdivided for Indian purposes.

NEW BRUNSWICK

A retracement survey was made of a portion of the Tabusintac Indian reserve.

QUEBEC

A small portion of the Lorette Indian reserve was subdivided for Indian purposes.

A preliminary examination, without survey, was made in connection with the proposed reserve at Barriere Lake for the Indians of that vicinity.

ONTARIO

A portion of the Rainy Lake Indian reserve No. 18-B was subdivided into lots for Indian occupation.

An additional plot of ground was surveyed for cemetery purposes in the Mattagami Indian reserve.

A survey was made of Snake island, in lake Simcoe.

A portion of lot 27, block B, Walpole island, was subdivided into lots for summer resort purposes.

The Mohawk church lot at Brantford was surveyed.

SASKATCHEWAN

The unsurrendered portion of the Mistawasis Indian reserve was subdivided for Indian purposes.

The unsurrendered portion of the Muskeg Lake Indian reserve was subdivided for Indian purposes.

A portion of the Muscowekuan Indian reserve was subdivided for sale and valuations made.

A reserve was selected by sections and fractional sections at Chitek lake for that portion of the Witchekan lake band which resides at Chitek lake.

A survey was made of a small parcel in the surrendered portion of the Fishing Lake Indian reserve and also a small portion of the Fishing lake reserve was surrendered and surveyed.

BRITISH COLUMBIA

The north and east boundaries of the Long Lake Indian reserve No. 5 were retraced.

The surrendered portion of the Scowlitz Indian reserve No. 1 was subdivided into farm lots.

A small portion of the Slosh Indian reserve No. 1 was surrendered and surveyed.

The north boundary of Ruby Creek Indian reserve No. 2 was retraced.

A portion of the Campbell River Indian reserve No. 11 was surrendered and surveyed.

LANDS AND TIMBER

LANDS

Sales of surrendered, surveyed lands are shown in the tabular statement appearing in Part II of this report. During the past year 5,804·43 acres were sold, realizing $58,207.46. The number of land patents issued during the year ending March 31 last was 300, and returns of Crown grants to the number of 33 were prepared and forwarded to the registrars of the counties and districts in which the lands patented were situate, and four returns were made to the Provincial Secretary of Ontario covering lands patented within that province.

LOCATION TICKETS

Location tickets granting title under the provisions of the Indian Act, to individual owners, for lands on the reserves, were issued during the past year to the number of sixty-five, and on March 31 last, there were enrrent 2,454 location tickets.

LEASES

Under the provisions of section 11 of the regulations for the disposal of Indian lands, leases were issued to white men at the request of the Indian locatees to the number of 98, and on March 31 last, there were 1,322 leases current.

ENFRANCHISEMENT

Under the provisions of section 122A of the Indian Act there have been enfranchised during the past fiscal year 98 Indians, heads of families, comprising a total number of men, women and children of 307. The total number of Indians enfranchised to March 31, 1922, under this section, is 813.

TIMBER

Lumbering operations on Indian Reserves in the Dominion during the license year 1921-22 were not carried on to so large an extent as during the previous year with the exception of certain reserves in the province of British Columbia.

In Eastern Canada the cut was approximately 40 per cent lower than during the year 1920-21, but the total cut throughout the Dominion was somewhat larger owing to the fact that return of the cut of yellow pine, and British Columbia spruce and cedar was 400 per cent greater than the previous year.

The general conditions in the lumber trade were so discouraging last year in Eastern Canada, that very little activity was evident, and consequently it was found necessary to renew several licenses under the non-working clause.

The quantity of timber cut on Indian Reserves during the year, both under license and under permit was as follows:—

Fir (Douglas)	9,104,970	f.b.m.
Pine (yellow)	15,653,325	"
Pine (white)	1,977,516	"
Pine (red or Norway)	504,711	"
Pine (jack)	572,787	"
Spruce (various species)	8,053,135	"
Hemlock (eastern)	2,347,096	"
Hemlock (western	3,496,629	"
Cedar (white and red)	2,820,963	"
Tamarack	66,950	"
Balsam fir	122,203	"
Maple	876,737	"
Beech	861,479	"
Ash	3,330	"
Elm	167,865	"
Birch	387,947	"
Oak	4,224	"
Basswood	54,076	"
Poplar	393,510	"
Cotton-wood	115,122	"
Cordwood	11,852	cords
Pulp-wood	18,231	"
Shingle bolts	5,927	"
Boom timber	32,830	cu. ft.
Ties	31,861	
Posts	5,569	
Poles	2,603	

The total quantity of timber cut for sale in terms of board measure feet was approximately sixty-five million and in addition to this quantity, the Indians themselves cut approximately nine million f.b.m. of timber for building and fencing purposes and 18,000 cords of fuel for domestic use, besides an unreported quantity of material for the native manufacture of snowshoes, axe-handles, hockey sticks and baskets.

The sale of standing timber on Reserves was discouraged as prices were very low and it was considered advisable in the Indian interest to withhold the disposal of timber until such time as prices have attained a more normal level. However, in certain instances where the Indians petitioned the Department to be allowed to sell their timber so as to relieve their immediate necessities, sales were made in conformity with the regulations. These were as follows:

Part Rama Reserve	$ 600 plus dues.
Kwatlena Reserve	400 deposit plus royalty.
Shoal Lake Reserve No. 28A	8,000 bonus plus dues.
Point Maniwaki Reserve	800 bonus plus dues.
Point Parry Island Reserve	1,000 deposit plus royalty.
Total	$10,800

Cash receipts during the year were:—

Bonuses and deposits	$ 52,700 00
Timber dues (license)	65,393 62
Timber dues (permit)	9,474 88
Ground rents and fees	2,998 45
Interest charges	9,433 25
Trespass dues	946 38
Total	$140,946 58

There were forty-five timber licenses current on April 30, 1922, being five more than the previous year, eleven new licenses having been issued and six old licenses cancelled or relinquished.

Estimates of timber on seven reserves were compiled in the course of the usual administrative work and this data has been added to the record of the natural resources of the Indians which is in course of preparation.

Forest conservation, comprising the disposal of slash, the elimination of fire-hazards, the closer utilization of timber, the salvage of diseased, infested or fire-killed timber and adequate forest protection was carried out on many Reserves and the Indians encouraged in every possible way to make their lumbering operations constitute the initial step toward the clearing of the land for cultivation.

Compensation to the extent of $12,500 was collected from the Granby Company, B.C., for the destruction of timber on certain reserves of the Kincolith band, due to the action of sulphur fumes emanating from the smelter at Anyox, and measures were taken to ensure that the Indians of the Mattagami reserve, Ont., did not suffer any loss owing to the flooding of the shore line of their reserve by the raising of the water level due to the construction of the Kenogamisee dam by the Northern Canada Power Company.

As a measurre of relief to many of the Indians, and to enable them to tide over the period of unemployment, the department waived the collection of dues on timber cut under permit, and in one instance—Restigouche Reserve, Que.—the department undertook to provide employment, by purchasing the pulpwood cut by the Indians, with the view of holding the same until the condition of the market would warrant a profitable sale.

Distribution of moneys which have accrued from the sales of timber during the period of high prices, was made to several Indian bands so as to assist them to improve their condition, the sum of $19,050 having been expended in this manner.

SUMMARY OF INDIAN AFFAIRS IN THE VARIOUS PROVINCES BASED ON THE REPORT OF THE DEPARTMENT'S AGENTS AND THE INSPECTORS FOR THE FISCAL YEAR ENDED MARCH 31, 1922.

The local administration of the Indian lands, on the reserves scattered throughout the Dominion, is conducted through the department's agencies, of which there are in all 114. The number of bands included in the agency varies from one to more than thirty. The staff of an agency usually includes various officers in addition to the agent, such as the medical officer, clerk, farm instructor, field matron, constable, stockman, etc., according to the special requirements of the agency in question. At many of the smaller agencies in the older provinces, where the Indians are more advanced, the work is comparatively light, requiring only the services of an agent. The work of the agencies is supervised by the department's inspectors, each inspector having charge of a certain number of agencies.

ONTARIO

Agencies.—The following agencies are included in the province of Ontario: Alnwick, Bay of Quinte, Cape Croker, Chapleau, Chippewas, Munsees, and Oneidas of the Thames, Christian Island, Fort Frances, Georgian and Snake Islands, Golden Lake, Gore Bay, Kenora, Lake Superior (Eastern and Western Divisions), Manitowaning, Missassaguas of the Credit, Moravians of the Thames, Parry Sound, Rama, Rice and Mud Lakes, Sarnia, Saugeen, Seugog, Six Nations, Sturgeon Falls, Thessalon, and Walpole Island.

Tribal Origin.—The great majority of the Indians of Ontario are Ojibwas, and are of Algonkin stock. The Oneidas of the Thames, the Mohawks of the Bay of Quinte, the Mohawks of the Parry Sound district, and the Six Nations of Brantford are of Iroquoian stock. There is a band of Pottawattamies at Walpole island, and Delawares at the Caradoc agency; these are of Algonkin stock.

Occupations.—The Indians in the western and central parts of Ontario engage largely in farming. The reserves, generally, are well suited to this purpose and the activity of the department's field agents has resulted in a steady improvement both in the methods of operation and the results achieved. The success achieved by the returned soldiers of this province has been especially creditable and are rapidly developing prosperous communities.

During the summer months Indians find a profitable source of income as guides and canoe-men. Many are employed at various industries and trades while railway and navigation companies employ a large number. As a rule they are excellent bushmen and many find employment in the various lumber camps. There is still an excellent market for snowshoes, canoes and moccasins and these are usually manufactured by the other members of the community.

The women also have many sources of income; some are employed as domestics; others support themselves by making baskets and fancy work. In certain districts berry-picking is an important item and furnishes considerable income.

Health.—The health of the Indians of Ontario has been good during the past year. While tuberculosis is still their worst enemy the efforts of the department for the past decade have borne fruit and this disease is noticeably less than in previous years.

Dwellings.—A great majority of the Ontario Indians have comfortable farmhouses which compare very favourably with those of their white neighbours. Many own houses of brick and stone, but in the outlying and more remote districts the old log houses are in the majority. In the more settled districts the Indians have followed the example of the whites and both houses and farm buildings are comfortable and of excellent construction.

New Ontario.—In the remote parts of Ontario hunting and fishing are still the chief sources of livelihood. While fur has been very scarce the price has been correspondingly high. Fishing, however, has not been as successful this year owing to the scarcity of the market and the low prices. Acting as guides and canoe-men during the summer months adds considerably to their income. While agriculture is not carried on to any extent most of the bands grow considerable crops of potatoes and vegetables. They are, of necessity, more or less nomadic and consequently live in tents most of the year. This condition will greatly change as civilization progresses.

Their health has been generally good, although somewhat subject to tuberculosis.

QUEBEC

Agencies.—The following agencies are included in the province of Quebec: Becancour, Bersimis, Caughnawaga, Lake St. John, Lorette, Maria, Mingan, Oka, River Desert, Restigouche, Seven Islands, St. Regis, Timiskaming and Viger.

Tribal Origin.—The principle tribes found in Quebec are: Iroquois at Caughnawaga, lake of Two Mountains, and St. Regis; the Hurons of Lorette are also of Iroquoian stock; the Montagnais, who are also of Algonkin stock, at Bersimis, Mingan, lake St. John, Seven Islands; the Abenakis, also of Algonkin stock, at Becancour and St. Francis; the Micmacs, also of Algonkin stock, at Maria and Ristigouche; and the Malecites, also of Algonkin stock, at Viger.

In the agricultural districts of the province the Indians are developing a keener interest in farming operations and are making a decided success. In the Gaspé peninsula the Indians find employment in the lumber camps and mills, but on the north shore of the gulf fishing, hunting and trapping are still the principle sources of income. In the northern part of the province lumbering is the chief pursuit. One of the principle industries of the Indians of Quebec is making baskets, and many of the Indians spend the summer months at the resorts in order to dispose of the baskets, lacrosse sticks, racquets, moccasins, etc., to the tourists. Some of them, particularly in the Saguenay districts, act as guides and canoe-men.

Health.—On the whole, the health of the Indians of Quebec has been good during the part year.

Dwellings.—In the older settled districts of the province the Indians own many excellent stone and brick houses. Generally speaking, the buildings are almost all of good construction, comfortable and sanitary. In the more remote districts, where hunting and trapping are still the principle occupations, the Indians necessarily live in tents during the greater part of the year.

The North Shore.—Along the north shore of the gulf of St. Lawrence, the Indians have been taking a marked interest in the fishing industry. At Mingan, Natashkwan, Romaine, St. Augustine, and Moisie, the fishing is under departmental supervision. Salmon and cod are the principal marketable fish and are a source of considerable income to the Indians. The land is not suitable for extensive cultivation but many of the Indians have very creditable gardens.

NEW BRUNSWICK

Agencies.—There are three agencies in the province of New Brunswick, the Northeastern located at Buctouche, the Northern located at Perth, and the Southwestern located at Fredericton.

Tribal Origin.—The majority of the Indians of New Brunswick belong to the Micmac race, which is of Algonkin stock. In addition to these there are some bands of Malecites, also of Algonkin stock.

Occupations.—In the Northeast division the Indians are mostly engaged in fishing, hunting and trapping. Some farming is carried on, and the Indians have rather tended to increase their interest in this regard.

The lumbering industry employs quite a large number and the Indians all through the eastern provinces have become very proficient in the lumber camps, on the river drives and in the mills. In the Northern division there is less farming carried on, and the Indians during the summer months find employment generally as day labourers. In the Southern division they support themselves chiefly by the manufacture and sale of Indian wares.

NOVA SCOTIA

Agencies.—There are nineteen Indian agencies in the province of Nova Scotia, namely: Yarmouth, Digby, Shelburn, Queens, Lunenburg, Annapolis, Kings, Windsor, Shubenacadie, Halifax, Cumberland, Colchester, Pictou, Antigonish-Guysboro, Richmond, Inverness, Victoria, Sydney, and Eskasoni.

Tribal Origin.—The Indians of Nova Scotia are of Algonkin stock, and bear the distinctive name of Micmac.

Occupations.—They follow various occupations, but, as a rule, do not confine themselves to any particular one. Many of them cultivate the land with indifferent success, but as there are exceptions in almost every case, so it is with our Indians; a few of them are succeeding very well as farmers. The majority of those living near industrial centres usually work as day labourers. Hunting, trapping, and acting as guides for sportsmen are favourite occupations, more especially with Indians of middle age. Basket-making, and the manufacture of fancy moccasins, etc., are confined mostly to women. A profitable employment among Indians in a few sections of Nova Scotia is the manufacture of hockey sticks, and they appear to be experts at the business.

Health and Sanitation.—The general health of Indians in this Province during the past year was normal. No disease of an epidemic character appeared among them. They suffer most from tuberculosis, which, however, seems to be less in evidence than formerly. Sanitary regulations are very well observed by most of them, and they begin to realize fully the importance of cleanliness and pure air as preservers and promoters of good health.

Buildings.—With very few exceptions, Indians in Nova Scotia occupy houses of frame construction, well finished on the outside, but unfinished inside. Every settlement, however, has a few comfortable dwellings well finished throughout. Other buildings owned by Indians—barns and storehouses—are mostly of frame construction also.

PRINCE EDWARD ISLAND

Agency.—One agency is sufficient for the purposes of the department in this province, as the total Indian population is only 292.

Tribal Origin.—The Indians of this province all belong to the Micmac tribe, which is of Algonkin stock.

Occupations.—But few of the Indians of Prince Edward Island are farmers. The principle industries are basket-making and fishing. The oyster fisheries, which had been a complete failure for some years, is again profitable and has added somewhat to the income of the Indians.

MANITOBA.

Agencies.—The following agencies are included in the province of Manitoba: Fisher River, Clandeboye, Norway House, Griswold, Portage la Prairie and Manitowapah, Pas and Birtle.

Tribal Origin.—The majority of the Indians of Manitoba belong to the Ojibwa race, which is of Algonkin stock. Bands of Swampy Cress are found at the Norway House and Fisher River agencies and in the York Factory district; these are also of Algonkin stock. The Indians located at the Griswold agency are Sioux; there are also Sioux at the Birtle and Portage la Prairie agencies. There is a band of Chipewayans at Fort Churchill; this tribe is of Athapascan stock.

The reserves in Manitoba suitable for extensive agriculture are mainly within the Birtle, Griswold, and Portage la Prairie agencies. On some reserves during the last two years the crops have not been up to the standard and the Indians have somewhat lost heart in their farming operations, but generally speaking progress has been satisfactory.

In the northern agencies the occupations are mostly hunting and trapping, but fishing has been becoming a more and more important factor during the past four or five years, and considerable income has been derived therefrom. While fur has been scarce the price has been high and the market for fish has increased. All of the northern Indians are expert guides and canoe-men, and many find employment in this way or with the transport or fur companies.

In the southern and more settled districts many of the younger people seek employment as day labourers, and owing to the high wages have been fairly prosperous. The Indian women make needle work, baskets, etc., for which there is a ready market.

Health.—The health of the Indians throughout the province has been good, in fact, the steady improvement has been very noticeable. More sanitary methods of living and more comfortable houses and more steady incomes have tended not a little towards this improvement. The houses are more comfortable and of better construction; as a rule they are well furnished and the Indians are living in more and more comfort. While in the north the nomadic life of the Indians does not permit of other than the old fashioned log house, still even these are being greatly improved and in some cases are being replaced by suitable frame dwellings.

SASKATCHEWAN

Agencies.—The following agencies are included in the province of Saskatchewan: Assiniboine, Battleford, Carlton, Crooked Lake, Duck Lake, Moose Mountain, Onion Lake, Pelly, Qu'Appelle, and Touchwood Hills.

Tribal Origin.—The most numerous tribes among the Saskatchewan Indians are the Ojibwas, Swampy Cress and Plains Cress, which all belong to the great Algonkin stock. In addition to these, Sioux Indians are found at the Assiniboine, Moose Mountain, Qu'Appelle and Carlton agencies, and on the Moose Woods reserve. In the Onion Lake agency there is a band of Chipewyans, who are of Athapascan stock. There are also a few Chipewyan Indians in the Isle à la Crosse district.

The principal occupation of the Indians of Saskatchewan is mixed farming and stock-raising. The close supervision which the department has had over these Indians has tended to greatly improve their method of farming and consequently their crops and income derived from them have greatly increased. Most of the Indians are well provided with good quality of machinery. As a rule they have good stock and suitable houses. In the outlying districts, however, hunting and trapping are still the main sources of income and will so remain until civilization encroaches upon the hunting grounds.

Health.—The health of the Indians of Saskatchewan has on the whole been good and shows some improvement over previous years. The department has instituted a staff of nurses, with headquarters at Regina, which will be available for duty at any reserve when called upon. It is hoped that by constant supervision and instruction that the health of the Indians will continue to show even greater improvement than in the past.

Dwellings.—The dwellings of the Indians on the reserves where farming is carried on are now mostly of frame construction. The outbuildings, however, are generally of logs, but even there there has been some improvement.

ALBERTA

Agencies.—The following agencies are included in the province of Alberta: Blackfoot, Blood, Edmonton, Hobbema, Peigan, Saddle Lake, Sarcee, Stony, and Lesser Slave Lake.

Tribal Origin.—The Alberta Indians are of Algonkin stock, with the exception of the Sarcees near Calgary and the Beavers and Slaves in the Lesser Slave Lake agency, who are Athapascan, and the Paul's band in the Edmonton agency, who are Iroquoian, and the Stonies, who are of Siouan stock. The Algonkin Indians of Alberta are subdivided into Blackfoot nation, comprising the Indians of the Blackfoot, Blood and Peigan agencies, Plain Crees found in the Lesser Slave Lake, Saddle Lake, and Hobbema agencies, and a band of Ojibbewas at Moberly Lake, in the Lesser Slave Lake agency.

The principal occupations of the Indians of Alberta are farming and stock-raising. Almost all the reserves in the settled districts of the province have large herds of horses and cattle.

In the northern parts of the province hunting and trapping are still almost the sole sources of income; there is practically no farming carried on and the construction of steamers on the Peace and Athabasca rivers, and of the railways to Peace River Crossing and Fort McMurray have greatly lessened the wages of the Indians with the trading companies and transports. However, the price of fur has been even higher than in past years.

Buildings in the Southern Part of the Province.—The dwellings and farm buildings are of excellent construction and quality. Almost all the reserves where extensive farming is carried on boast on up-to-date modern dwellings, comfortable and well constructed. In the north the nomadic mode of the habits forces them to live under canvas or in tepees during the greater part of the year.

BRITISH COLUMBIA

Agencies.—The following agencies are included in the province of British Columbia: Babine and Upper Skenna, Bella Coola, Cowichan, Kamloops, Kootenay, Kwawkewlth, Lytton, Nass, New Westminster, Okanagan, Queen Charlotte, Stikine, Stuart Lake, West Coast, Williams Lake and Skeena River.

Tribal Origin.—The Indians of the Bella Coola, Cowichen, Kamloops, Lytton, New Westminster, and Okanagan agencies belong to the Salish tribe. The Kootenay tribe is located in the agency of the same name. The Kwakintl-Nootka tribe is located at the Kwawkewlth and West Coast agencies; the Haidas, in the Queen Charlotte islands; the Tlingits, in the Stikine; and the Tsimshians, in the Naas agency. The Indians of the Babine, Stuart Lake and Williams Lake agencies belong to the Athapascan race.

In addition to these there are about 3,000 nomadic Indians in the province who cannot be correctly classified according to linguistic stock or tribal origin.

Occupations.—The occupations of the Indians of British Columbia vary with their habitat. The Indians situated along the coast earn their livelihood principally by fishing. In many instances they own their own motor-launches, nets and gear, while others are supplied by the various canneries. Many of the women are also employed in the canneries or in the hop fields, and make a very steady income.

The Indians of the Queen Charlotte islands own and operate their own small plant for rendering the oolachan or candle fish. In the inland parts of the province some farming operations are carried on and particularly in the irrigated districts grain, fruits of all kinds, and vegetables have been raised with success.

These Indians have been making marked progress in this regard and are now well equipped with modern machinery.

The Kootenay, Kamloops, Okanagan and New Westminster Indians own large herds of horses and cattle. While the Indians in the northern and remote parts of the province still depend upon hunting and trapping for their livelihood, the agents report a marked improvement in their manner of living.

Dwellings.—Except for the more remote districts the Indians have built comfortable and modern dwellings and outbuildings. Their progress in this respect has been perhaps more rapid than any other Indians of the Dominion.

NORTHWEST TERRITORIES

Agencies.—The department has only two agencies in the Northwest Territories, one being located at Fort Simpson, and the other at Fort Smith.

Tribal Origin.—The principal tribes found in the Far North are the Slaves, Hares, Loucheux, Secanies, Dogribs, Yellow-knives, Chipewyans and Caribou Eaters. All these tribes are of Athapascan stock. There are a few Crees in the neighbourhood of Chipewyan. These are of Algonkin stock. The most northely tribes are the Tukudah, who extend to the Mackenzie Delta, and the Copper Mines, who are located along the Coppermine river. The territory occupied by these two last-mentioned tribes is contiguous to that inhabited by the Eskimos.

These Indians depend entirely upon hunting and trapping for a livelihood. The department last year has made a treaty with the Indians along the Mackenzie river thus bringing under the supervision of the Dominion Government practically the only Indians Canada with whom treaty had not been made.

Occupations.—A few have been induced to raise small plots of potatoes. They own no horses or cattle, transportation being almost entirely by canoe along the great waterways, or by dogs in winter. They catch and preserve large quantities of whitefish for their own use and for consumption by their dog-trains in winter.

Health.—Tuberculosis and scrofula are the diseases most prevalent among the Indians of the north. As they are forced to move from place to place their methods of living are primitive and the lack of vegetbles is a source of menace to their health; however, conditions are greatly improving.

YUKON

Tribal Origin.—The Forty Mile, Blackstone, and Moosehide bands belong to the Takudh tribe. There is a band of Slavies at Lancing Creek who migrated from Fort Good Hope, on the Mackenzie river; another band of Slavies, called Nahanies, is located at the headwaters of the Pelly river. All these Indians are of Athapascan stock. At Mayo, Selkirk, Little Salmon and Carmacks there are bands belonging to the tribe known as Stick Indians. Bands belonging to the Tlinjit tribe are found at Whitehorse, Teslin Lake, Champagne Landing, and Carcross.

Occupations.—Hunting, trapping and fishing are the chief occupations of the Yukon Indians, and they have been fairly successful during the past year. The women also derive some revenue from the sale of moccasins and curios of various kinds, while the men are expert at making toboggans and snowshoes. Practically no farming is carried on owing to climatic conditions, but some of the Indians cultivate patches of potatoes and other vegetables.

Health.—The general health of the Indians has been good. No epidemics have been reported and although improvement in sanitary conditions is necessarily slow owing to the remoteness of the district, some improvement has been noticed.

FINANCIAL

At the close of the twelve months ended March 31, 1922, the capital of the Indian Trust Fund, which at the end of the preceding year amounted to $11,458,-960.99, had decreased to $11,402,577.43.

The amounts expended from the Consolidated Revenue Fund were as follows: voted by Parliament for the purposes of the department, $2,756,275.47, and annuities by statute, $191,834.

On March 31 last, the balance to the credit of the Indian Savings Account for the funding of the annuities and earning of pupils at industrial schools was $127,829.66. Deposits and interest during the twelve months aggregated $45,867.53 and withdrawals $30,241.23.

GENERAL

The Indians of Canada, as such, have had a comparatively normal year.

In common with other sections of the community, the Indians have felt the effects of the industrial depression and low prices of agricultural products, which have inevitably reduced their earnings and proceeds of their farming operations. The hunting Indians, however, have enjoyed an exceptionally good year, their income from the sale of the skins having doubled, being $1,624,494, as compared with $860,494 last year.

The Indian population is fairly stable at about one hundred thousand, although census statistics over a long period show a slight increase from year to year, dispelling the popular misconception that they are dying out.

The record of the Indians in the great war should give the public a better understanding of the sterling qualities of the race. An interesting article on this subject appeared in the report of the department for 1919.

In part II, which follows herewith, will be found statistics with regard to Census; Grain, Vegetable and Root Production; Land, Private and Public Buildings and Property; Live Stock and Poultry, General Effects; Value of Real and Personal Property and Progress during year; Sources and Value of Income; Schools; Indian Land; Civil Government; Appropriation Accounts, and Indian Trust Fund.

I have the honour to be, sir,

Your obedient servant,

DUNCAN C. SCOTT,

Deputy Superintendent General of Indian Affairs.

PART II

TABULAR STATEMENTS

TABLE No. 1.—RECAPITULATION: CENSUS OF INDIANS AND ESKIMOS

Arranged under Departmental Inspectorates and Districts

Inspectorates and Districts	Religion								Under 6 years		From 6 to 15 inclusive		From 16 to 20 inclusive		From 21 to 65 inclusive		From 65 upwards		Change in Population		Cause of increase		Cause of decrease	
	Number in Band	Anglican	Baptist	Methodist	Presbyterian	Roman Catholic	Other Christian Beliefs	Aboriginal beliefs	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Increase	Decrease	Births	Migration	Deaths	Migration
Alberta	5,598	809		1,548		2,203		1,038	562	593	581	532	303	301	1,282	1,260	62	122	90	23	216	38	167	20
British Columbia	24,744	4,492		3,075	585	12,389	369	1,334	1,949	1,900	2,099	2,075	1,302	1,304	5,297	5,190	521	557	303	301	603	136	643	103
Manitoba	14,827	4,919	110	3,128	603	2,408	423	2,831	1,336	1,397	1,580	1,424	1,011	958	2,749	3,090	384	493	265	162	534	301	455	337
New Brunswick	1,846					1,846			145	147	161	156	70	57	327	306	51	35	35	63	67	37	70	62
Nova Scotia	2,031	14	10			2,006	1		178	217	200	187	134	133	399	379	79	70	19	107	46	22	65	91
Ontario	20,909	5,597	1,177	4,543	12	6,321	519	1,225	1,523	1,552	1,849	1,896	1,395	1,283	4,506	4,612	422	446	225	152	450	296	456	217
Prince Edward Island	292					292			20	30	33	28	19	17	65	58	14	8		10				10
Quebec	13,366	119		452	6	8,655	20		974	1,021	894	910	576	542	1,934	1,930	247	224	88	70	230	112	200	124
Saskatchewan	7,764	1,885		74	949	3,908	94	1,630	833	802	799	746	348	368	1,553	1,659	220	312	214	66	350	182	282	102
Isle a la Crosse District	1,999	688				1,311			207	226	222	234	89	93	395	484	15	34	35	6	74	70	46	69
Treaty No. 8 Inspectorate	4,821	438				1,654		356											206	88	164	282	130	198
Treaty No. 9 Inspectorate	2,634																		74		119	95	63	77
Northwest Territories	3,579	307				1,793			178	164	259	253	96	87	462	486	57	58						
Yukon	1,528	915				100																		
Total Indian Population	105988	20,182	1,297	12,820	2,155	43,986	1,426	8,414	7,905	8,049	8,677	8,351	5,345	5,144	19,003	19,472	2,072	2,359	1,494	1,048	2,853	1,571	2,568	1,410
Baffin Land—																								
ESKIMOS																								
Hudson Strait	471																							
Frobisher Bay	63																							
Cape Haven	23																							
Blackland Island	134																							
Keckerton Island	126																							
Home Bay	90																							
Pond Inlet	140																							
Admiralty Inlet	40																							
Total	1,087																							
Mainland—																								
Port Burwell	109																							
Ungava Bay	500																							
Hudson Strait	300																							
Hudson Bay (east side)	200																							
Hudson Bay (west side), including Chesterfield inlet	500																							

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RECAPITULATION: CENSUS OF INDIANS AND ESKIMOS

Arranged under Provinces and Districts

Provinces	Religion								Under 6 years		From 6 to 15 inclusive		From 16 to 20 inclusive		From 21 to 65 inclusive		From 65 upwards		Change in Population		Cause of increase		Cause of decrease	
	Number in Band	Anglican	Baptist	Methodist	Presbyterian	Roman Catholic	Other Christian Beliefs	Aboriginal Beliefs	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Increase	Decrease	Births	Migration	Deaths	Migration
Alberta	8,837	1,247		1,548		3,704		1,307	569	602	585	638	306	303	1,292	1,273	62	123	193	38	346	183	252	115
British Columbia	25,694	4,492		3,075	586	13,039	369	1,421	1,993	1,931	2,152	2,132	1,320	1,327	5,389	5,297	528	567	315	357	618	142	641	162
Manitoba	11,583	3,636	110	3,128	592	1,919	423	1,370	1,074	1,124	1,181	1,048	861	794	2,071	2,307	321	397		352	406		337	421
New Brunswick	1,846					1,846			145	147	161	156	70	57	327	306	51	35	35	63	67	37	70	62
Nova Scotia	2,031	14	10			2,006	1		178	217	200	187	136	134	433	397	70	70	19	107	46	22	65	91
Ontario	26,411	6,469	1,177	4,543	23	6,785	519	2,686	1,743	1,783	2,212	2,143	1,512	1,416	5,107	5,292	470	524	336	230	673	476	623	420
Prince Edward Island	292					292			20	30	33	28	10	17	65	58	14	8		10				10
Quebec	13,366	119		452	6	8,655	20		974	1,021	894	910	576	542	1,934	1,930	247	224	88	70	230	112	200	124
Saskatchewan	10,646	2,984		74	949	4,289	94	1,630	1,075	1,061	1,053	1,013	467	490	2,015	2,233	250	363	684		458	578	352	
Northwest Territories	3,764	307				1,351			134	133	206	196	78	64	370	79	50	48	12	17	15	36	25	31
Yukon	1,528	915				100																		
Total Indian Population	105,998	20,183	1,297	12,820	2,155	43,086	1,426	8,414	7,905	8,049	8,677	8,351	5,345	5,144	19,003	19,472	2,072	2,359	1,681	1,244	2,853	1,586	2,560	1,436
ESKIMOS																								
Baffin Land—																								
Hudson Strait	471																							
Frobisher Bay	63																							
Cape Haven	23																							
Blackland Island	134																							
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Total	1,087																							
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Port Burwell	109																							
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Hudson Strait	300																							
Hudson Bay (east side)	200																							
Hudson Bay (west side, including Chesterfield Inlet)	500																							

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Table No. 2: GRAIN, VEGETABLE AND ROOT PRODUCTION

Agencies	Wheat		Oats		Other Grains		Peas, Beans, etc.		Potatoes		Other Roots		Fodder		
	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Hay Cultivat'd	Hay Wild	Other Fodder
													Tons	Tons	Tons
Alberta															
Blackfoot	5,475	35,455	1,336	640	19		5	324						1,170	623
Blood	3,584	27,985	682	7,206										1,853	262
Edmonton	132	1,932	2,378	56,478	398	8,230			38	1,741			91	2,113	587
Hobbema	261	3,291	2,769	51,089	233	4,593			17	2,221	16	192		3,238	511
Lesser Slave Lake	10	170	151	1,640					48	4,878	5	499		2,361	198
Peigan	1,132	3,877	460						6	163				438	104
Saddle Lake	472	7,856	948	17,709	51	844			19	2,430	10	168		3,765	
Sarcee	20	207	354	233					3	185	1	32	12	50	215
Stony									5	30	6	140	50	450	
Total	11,086	80,776	9,078	134,995	701	13,667	5	324	136	11,648	38	1,031	153	15,438	2,500
British Columbia															
Babine			66	131					191	2,817	50	9,300	990	415	
Bella Coola									12	1,300	2	200	30	310	
Cowichan	55	1,700	371	15,800					176	4,870				1,303	
Kamloops	600	18,888	1,213	48,540	121	3,591	443	11,075	897	185,010	576	22,254	5,581	630	565
Kootenay	61	695	741	280	7	85	1		44	1,635	15	455	1,175	943	58
Kwawkewith									4	410					
Lytton	154	3,735	197	5,280	30	860	303	13,690	221	44,275	11	275	1,179		29
Nass River			1	15			2	175	85	8,500	8	750	16	35	
New Westminster	20	755	403	22,900	26	1,000	61	1,862	321	30,550	60	7,540	773	387	60
Okanagan	1,075	30,500	655	17,200	93	2,200	53	1,710	296	14,550	57	2,480	1,690	1,320	290
Queen Charlotte			2	40					22	1,100	12	925		8	3
Skeena River									172	14,900					
Stikine									2	29				38	
Stuart Lake	1	30	252	2,380	3	90			35	4,780	15	1,820	423	1,530	390
West Coast								3	2	70	1	19			
Williams Lake	123	2,425	277	11,345					109	6,310	83		1,129	1,923	
Total	2,089	58,728	4,178	123,911	280	7,826	863	28,515	2,584	321,106	890	46,018	14,289	7,539	1,395
Manitoba															
Birtle	628	5,589	991	14,147	268	4,806	7	217	17	1,830	3	180		2,287	900
Clandeboye			15	400			9	270	113	7,155	20	1,070		1,835	
Fisher River	47	860	322	8,929	75	1,615			89	5,136	37	696		3,809	
Griswold	1,263	8,387	508	2,430	284	1,802			21	1,152	8	100		942	88
Manitowapah	36	352	27	306	12	225			70	7,843	3	138		3,859	6
Norway House									72	1,920		15		200	
Pas									58	5,050				2,205	
Portage la Prairie	1,586	18,381	621	6,858	285	4,111			7	327				533	92
Total	3,560	33,569	2,574	33,079	924	12,559	16	487	447	30,413	71	2,199		15,670	1,086

NEW BRUNSWICK																
Northern Division	2	30	15	250	12	130	3	21	20	1,400	5	100	82	39	.....	.....
Northeastern Division	8	115	78	650	10	100	5	100	35	4,000	10	400	60	40	15	
Southwestern Division	1	10	2	40	4	140	1	26	8	560	1	20	2	.....	.....	.....
Total	11	155	95	940	26	370	9	147	63	5,960	16	520	144	79	15	
NOVA SCOTIA																
Annapolis	.....	.....	.....	.....	.....	.....	1	8	5	150	1	18	5	.....	.....	.....
Antigonish and Guysboro'	1	22	2	83	.....	.....	2	31	5	290	4	61	31	8	8	
Cape Breton (Eskasoni)	2	40	7	150	2	25	1	9	20	260	2	100	70	25	2	
Cape Breton (Sydney)	.....	.....	.....	.....	.....	.....	.....	.....	2	100	.....	.....	.....	.....	.....	.....
Colchester	.....	.....	.....	.....	.....	.....	.....	.....	3	350	¼	20	5	.....	.....	.....
Cumberland	.....	.....	1	25	.....	.....	.....	.....	1	125	.....	.....	2	.....	.....	.....
Digby	.....	.....	.....	.....	.....	.....	.....	.....	4	190	.....	.....	5	1	.....	.....
Halifax	.....	.....	4	140	.....	.....	½	2	18	260	2	150	15	12	.....	.....
Hants	.....	.....	2	250	.....	.....	.....	.....	5	400	.....	.....	50	10	.....	.....
Inverness	.....	.....	3	45	.....	.....	1	2	6	320	2	87	17	60	5	
Kings	.....	.....	2	40	.....	.....	1	2	2	50	1	40	5	5	.....	.....
Lunenburg	.....	.....	.....	.....	.....	.....	1	8	10	705	1	20	32	21	.....	.....
Pictou	.....	.....	1	12	.....	.....	.....	.....	1	359	.....	.....	1	.....	.....	.....
Queens	1	30	.....	.....	.....	.....	.....	.....	4	125	.....	.....	10	.....	.....	.....
Richmond	.....	.....	20	300	.....	.....	.....	.....	9	1,000	¼	100	36	6	6	
Shelburne	.....	.....	.....	.....	.....	4	.....	6	.....	60	.....	16	5	.....	.....	.....
Victoria	.....	.....	4	40	.....	.....	2	5	11	285	.....	.....	80	8	5	
Yarmouth	.....	.....	.....	.....	.....	.....	.....	.....	2	60	1	40	.....	.....	.....	.....
Total	4	92	46	1,085	2	29	9½	73	111	5,629	14½	655	369	156	20	
ONTARIO																
Alnwick	26	196	118	2,280	77	1,520	.....	.....	12	1,000	6	1,050	75	.....	9	
Cape Croker	140	1,600	150	3,000	30	400	50	1,000	20	2,200	4	220	50	25	10	
Curadoc	325	3,900	790	11,750	200	2,760	42	324	175	4,375	110	3,300	1,150	125	150	
Chapleau	.....	.....	.....	.....	11	800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Christian Island	16	200	80	1,300	5	30	20	160	12	450	2	200	40	.....	.....	.....
Fort Frances	33	223	164	2,202	.....	.....	.....	.....	27	3,020	2	110	92	130	.....	.....
Fort William	.....	.....	.....	.....	.....	.....	.....	.....	25	1,125	.....	.....	20	12	.....	.....
Georgina Island	15	100	60	300	5	40	5	20	6	400	2	50	55	15	15	
Golden Lake	10	30	23	50	10	20	.....	.....	6	200	.....	.....	10	20	.....	.....
Gore Bay	27	.....	151	1,654	45	365	27	118	99	0,440	20	735	102	32	75	
Kenora	.....	.....	.....	.....	.....	.....	.....	.....	39	2,170	6	105	3	317	.....	.....
Manitowaning	458	332	657	950	324	619	245	590	573	30,050	97	885	735	147	78	
Moravian	101	1,005	400	4,500	285	6,925	20	104	50	1,363	15	175	201	10	25	
New Credit	108	1,099	565	8,661	127	1,372	18	319	18	319	3	95	848	.....	217	
Parry Sound	.....	.....	115	2,305	12	250	7	240	37	1,100	8	360	365	25	.....	.....
Rama	8	200	80	2,400	5	150	10	300	30	1,400	4	400	65	25	70	
Rice Lake	65	1,200	263	7,360	45	1,150	10	140	40	3,600	20	7,200	180	15	68	
Sarnia	335	4,910	595	11,425	139	2,485	90	636	140	6,625	18	660	110	300	107	
Saugeen	12	150	200	4,000	40	700	5	100	35	1,500	12	225	125	4	130	
Sault Ste. Marie	30	360	115	3,900	.....	.....	15	220	103	5,400	14	710	77	88	.....	.....
Savanne	.....	.....	.....	.....	.....	.....	.....	.....	19	1,352	5	94	.....	52	.....	.....
Seugog	9	63	20	200	.....	.....	2	20	3	195	.....	.....	7	6	.....	.....
Six Nations	1,500	13,450	5,000	20,000	1,540	11,400	30	300	110	240	110	980	9,800	.....	6,000	
Sturgeon Falls	5	150	27	810	9	250	7	150	25	2,450	8	310	42	38	.....	.....
Thessalon	.....	.....	48	465	.....	.....	14	140	79	4,015	3	150	92	70	.....	.....
Tyendinaga	60	1,200	600	15,000	250	7,500	30	600	75	3,000	3	300	300	300	3 ,000	
Total	3,303	30,368	10,821	104,512	3,159	38,736	647	5,481	1,788	83,989	502	18,314	14,884	1,756	9,954	

[1]Bad crops due to Hail and Floods.

TABLE No. 2: GRAIN, VEGETABLE AND ROOT PRODUCTION—*Concluded*

Agencies	Wheat		Oats		Other Grains		Peas, Beans, etc.		Potatoes		Other Roots		Fodder		
	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Acres Sown	Bush. Harvested	Hay Cultivat'd	Hay Wild	Other Fodder
													Tons	Tons	Tons
PRINCE EDWARD ISLAND	13	195	40	740					11	1,034			31	22	
QUEBEC															
Becancourt			25	280	3	60	2	16	1	45					15
Bersimis	2	14	3	40					7	360			15	10	
Caconna															
Caughnawaga	40	400	1,070	9,000	850	10,000	50	1,200	300	15,000	40	2,000	200	20	50
Jeune Lorette															
Maniwaki	15	90	195	3,251	3	39	6	46	30	2,260	3	385	190	14	84
Maria	1	19	28	699	1	12			5	598					
Mingan															
Olea	40	300	250	3,750	25	300	15	200	30	650	5	40	250	25	150
Pierreville			25	210	10	150	10	100	25	100			50	75	
Pointe Bleue	74	812	630	8,600	250	2,600	60	800	250	6,500	10	150	400	15	100
Restigouche	17	160	190	3,600			2	49	87	3,700			86	4	36
Seven Islands															
St. Regis	150	3,000	465	7,450	74	690	65	855	340	6,000	50	1,850	290	225	500
Timiskaming	4	60	110	3,500	8	120	6	75	15	2,250	3	60	60		45
Total	343	4,855	2,991	40,380	1,224	13,971	216	3,341	1,090	37,463	111	4,485	1,541	388	980
SASKATCHEWAN															
Assiniboine	444	5,952	915	13,511	100	2,700			3	493	1	147		1,120	738
Battleford	1,198	19,229	1,010	17,856	4	24			42	3,747	5	376		3,808	476
Carlton	867	20,602	1,451	33,666	216	4,946	8	364	40	4,809				3,875	987
Crooked Lake	2,539	33,074	1,569	33,899	128	1,844			16	1,803	2	158		2,696	185
Duck Lake	2,543	20,605	815	24,216	32	800			22	1,514	3	128		4,722	81
File Hills Agency	40	500	495	8,211	10	350	½	35	3	685	2	70		1,364	55
File Hills Colony	450	8,073	2,795	51,817			6	100	5	915	1	145		690	609
Moose Mountain	628	8,295	321	3,000	35	650			6	500	4	200		930	
Moose Woods	41	799	81	2,445					8	713	1	15		254	36
Onion Lake	178	3,444	990	29,240	26	453			19	2,259	3	410		3,902	497
Pelly	101	1,866	1,594	21,866	100	1,743			8	1,475				945	
Qu'Appelle	2,278	36,799	1,586	27,747	28	366			10	1,895	9	280		1,378	364
Touchwood	1,855	27,150	1,876	39,628	50	500			15	2,275	5	450		2,600	970
Total	13,162	186,388	15,498	307,102	729	14,376	14½	499	197	23,083	36	2,379		27,644	4,998

RECAPITULATION

Provinces															
Alberta	11,086	80,776	9,078	134,995	701	13,667	5	324	136	11,648	38	1,031	153	15,438	2,500
British Columbia	2,089	58,728	4,178	123,911	280	7,826	863	28,515	2,584	321,106	890	46,018	14,289	7,539	1,395
Manitoba	3,560	33,569	2,574	33,079	924	12,559	16	487	447	30,413	71	2,199	.....	15,670	1,086
New Brunswick	11	155	95	940	26	370	9	147	63	5,960	16	520	144	79	15
Nova Scotia	4	92	46	1,085	2	29	9½	73	111	5,029	14½	655	369	156	20
Ontario	3,303	30,368	10,821	104,512	3,159	38,736	647	5,481	1,788	83,989	502	18,314	14,884	1,756	9,954
Prince Edward Island	13	195	40	740	...	.....	.....	.....	11	1,034	.....	.....	31	22	....
Quebec	343	4,855	2,991	40,380	1,224	13,971	216	3,341	1,090	37,463	111	4,485	1,541	388	980
Saskatchewan	13,162	186,388	15,498	307,102	729	14,376	14½	499	197	23,083	36	2,379	....	27,644	4,998
Total	33,571	395,126	45,321	746,744	7,045	101,534	1,779½	38,867	6,427	510,725	1,678½	75,601	31,411	68,692	20,948

TABLE No. 5: LAND: PRIVATE AND PUBLIC BUILDINGS AND PROPERTY

Agencies	Total Area of Reserve Acres	Acres Under Wood	Acres Cleared but not Cultivated	Acres Under Actual Cultivation	Acres Fenced	Private Property: Stone, Brick, and Frame Dwellings	Private Property: Other Dwellings	Private Property: Outbuildings, etc.	Private Property: Ploughs, Harrows, Drills, etc.	Private Property: Mowers, Reapers, Binders, Threshers, etc.	Private Property: Carts, Wagons, and Vehicles	Private Property: Tools and Small Implements	Public Property: Churches	Public Property: Council Houses	Public Property: School Houses	Public Property: Saw Mills	Public Property: Other Buildings	Public Property: Engines and Machinery
ALBERTA																		
Blackfoot	175,580	3,300	144,757	27,523	46,216	119	106	600	518	294	300	600			2		22	180
Blood	354,086	4,700	333,871	15,515	40,000	45	255	350	225	105	420	2,500	1	2	1	1	75	60
Edmonton	82,101	33,431	45,426	3,244	12,865	28	110	205	207	169	262	1,255	2		2		9	7
Hobbema	76,420	72,414	710	3,296	27,677		172	280	302	202	306	1,717						
Lesser Slave Lake	251,415	150,684	100,433	298	928		232	372	75	66	222	878	2					
Peigan	93,142	700	88,916	3,526	154,550	20	70	84	169	73	164	1,000	2	1			13	48
Saddle Lake	117,221	37,154	78,568	1,499	68,216	2	196	228	130	129	277	725						3
Sarcee	69,120	40,000	28,348	772	69,120	39	3	34	50	49	104	250	2	1	1		2	7
Stony	88,258	40,000	48,208	50	11,000	10	131	90	51	67	250			3				
Total	1,307,343	382,383	869,237	55,723	430,572	263	1,275	2,243	1,727	1,214	2,395	8,925	9	7	6	1	121	305
BRITISH COLUMBIA																		
Babine	28,414	19,393	7,815	1,206	1,160	352	319	384	64	40	168	4,774	6	6	5	2	1	
Bella Coola	17,348	17,084	175	89	1,264	254	140	330	28	13	40	1,100	5	5	4		1	
Cowichan	19,920	11,100	5,368	3,452	5,579	612	31	303	317	97	435	5,170	2		7			
Kamloops	171,079	87,748	74,290	9,041	106,205	252	322	658	1,122	420	513	1,485	6	5	3			6
Kootenay	42,316	2,320	38,339	1,657	2,157	48	149	191	235	58	210	336	5		1			
Kwawlewith	16,395	15,027	448	20	30	152	150					2,120			2			2
Lytton	55,360	33,254	18,712	3,394	5,701	478	355	379	460	118	398	2,995	33	5	1			4
Nass River	44,486	14,145	250	91	91	161	15	98	3		4		4	3	2	1		
New Westminster	39,842	32,411	4,246	3,185	3,901	627	281	768	154	30	105	2,011	29	5	7		2	
Okanagan	146,086	57,000	82,296	6,790	39,700	188	174	673	577	74	463	1,900	10	4	1	1	12	4
Queen Charlotte	3,484	2,074	1,387	23	25	179	75	85	3			675	3	2	2	1	5	17
Skeena River	57,106	56,735	196	175	111	356	69	95				400	9	5	5			2
Stikine	415	15	399	1	1	11	90				7	2,030						
Stuart Lake	34,504	29,471	4,080	1,043	3,575	43	256	316	66	45	135	2,565	15				5	
West Coast	12,364	11,897	372	95	152	384	217	5				230	6		6			
Williams Lake	73,007	29,651	41,401	1,955	43,983	12	233	125	142	130	225	555	11	3		2	1	3
Total	732,216	420,225	279,774	32,217	213,635	4,103	2,876	4,404	3,171	1,025	2,703	28,370	144	43	46	7	27	98
MANITOBA																		
Birtle	52,809	31,213	18,199	3,397	10,586	18	109	204	197	126	339	1,705	3		1		1	2
Clandeboye	65,496	54,150	10,914	432	735	6	380	162	50	15	44	370	10		14		6	
Fisher River	86,860	85,734	519	607	4,025		253	260	71	95	150		4	2	3		10	
Griswold	12,294	900	7,926	3,468	1,390	36	64	143	183	98	263	505	2		1		3	
Manitowapah	94,477	46,194	48,120	163	2,549	3	351	514	101	139	453	1,310	10		9		10	
Norway House	26,208	20,480	5,655	73	70	1	465	41	7			440	6		2		2	

Pas	54,881	44,631	10,158	92	209	34	354	146	27	27	24	400	10		6	1	7	
Portage la Prairie	22,452	3,800	14,303	4,349	3,850		121	158	83	77	182	430	1	1	1		9	6
Total	415,477	287,102	115,791	12,581	23,414	98	2,097	1,628	719	577	1,464	5,160	46	3	37	1	50	8
NEW BRUNSWICK																		
Northern Division	6,506	4,469	970	1,067	230	56		48	14	4	8	147	1	1	2			
North Eastern Division	13,227	12,097	516	614	925	225	37	135	79	22	126	565	6	3	5		7	
South Western Division	1,049	957	76	16	67	57		26	5		10	350		2	4			
Totals	20,782	17,523	1,562	1,697	1,222	338	37	209	98	26	144	1,062	7	6	11		7	
NOVA SCOTIA																		
Annapolis	627	608	10	9	2	18		5										
Antigonish and Guysboro	534	309	255	70	200	42	11	14	7		9	85	1		1			
Cape Breton (Eskasoni)	2,800	2,000	450	350	700	21		20	10	5	15	200	1		1		5	
Cape Breton (Sydney)	659	600	54	5	10	2	15	10	1			150						
Colchester	225	150	60	15	50	20	10	5	5	1	10	100	1		1		1	
Cumberland	1,000	995	5			18		3	2		3	185						
Digby	1,600	1,175	375	50	125	19		4					1		1			
Halifax	1,345	1,178	101	66	28	2	2	2		3								
Hants	3,250	2,850	300	100	98	18	3	15	8	3	15	1,200	1		1		1	
Inverness	2,755	1,949	331	475	555	40	2	21	17	4	14	130	1	1	2		1	
Kings	460	405	54	1	20	8	2	3	4		4	60						
Lunenburg	2,953	2,717	227	9	132	25		21	6	1	4	118			1			
Pictou	275	93	162	20	10	29			5		10		2		1		1	
Queens	1,000	600	200	200	300	17	2	5	3	1	6	200						
Richmond	1,281	850	230	201	225	29	6	18	20	2	30	200	1	1	1	0	3	1
Shelburne						7		3			3							
Victoria	796	496	240	60	80	15	1	10	9	1	12	110			1		3	0
Yarmouth	21	12	5	4	10	3	3	1	3		1	100		1		1		
Total	21,681	16,987	3,059	1,635	2,545	333	57	160	100	21	136	2,838	9	3	11	1	15	1
ONTARIO																		
Alnwick	3,575	900	125	2,550	2,800	40	2	30	62	30	70	265	1	1	1		1	1
Cape Croker	15,586	10,000	5,000	586	500	106	3	100	150	35	100	500	2	1	3	0	3	3
Caradoc	14,357	1,420	7,562	5,375	11,650	245	120	379	585	184	480	1,200	9	3	6	0	15	3
Chaplean	45,227	44,871	331	25	6	12					245		3					
Christian Island	13,264	12,494	560	210	500	22	20	30	22	5	20	100	2	1	1	1	0	1
Fort Frances	81,707	80,587	554	566	1,410	18	134	36	26	9	20	770			2		3	6
Fort William	42,307	41,875	360	72	57	86	85	14	6		4	200	7	2	5		2	
Georgina Island	3,574	2,044	1,400	130	500	0	20	20	15	8	10	100	1	1	1			1
Golden Lake	1,500	1,200	250	50	300	3	17	12	12		13	200	1		1			1
Gore Bay	14,570	11,929	1,691	950	1,884	15	115	299	133	26	176	610	4	1	4		2	3
Kenora	122,753	122,468	196	89	325		183	126	20		58	4,940			2			
Manitowaning	179,685	146,808	27,627	5,250	9,902	59	507	1,321	526	312	884	4,058	12	3	8		8	8
Moravian	31,030	28,830	1,200	1,000	2,500	37	36	100	100	34	92	115	2	1	1	1	1	2
New Credit	6,000	100	1,850	4,050	6,000	65	5	108	151	43	129	400	2	1	1		5	1
Parry Sound	76,225	74,195	1,200	830	1,177	47	76	50	69	26	54	165	8	1	4	1	1	1
Rama	2,300	1,150	750	400	1,150	50	9	40	8	6	15	200	1	1	1		5	
Rice Lake	3,860	1,900	810	1,150	2,150	47	17	69	82	44	73	165	2	2	2		1	2
Sarnia	51,407	41,562	5,700	4,085	11,390	165	115	465	430	187	473	1,040	7	4	6	2	9	7
Saugeen	9,020	4,000	4,457	563	1,800	50	30	125	175	45	120	300	5	1	3		4	
Sault Ste. Marie	39,600	36,325	1,442	1,833	1,886	62	91	138	85	17	168	1,375	5	1	3		2	3
Savanne	101,267	100,705	506	56	111		156	33	10		4	3,800			1			
Seugog	800	60	225	515	800	8	2	10	10	3	11	70	1				1	
Six Nations	43,096	8,820	7,760	27,116	43,096	550	210	1,636	2,260	500	1,648	9,800	15	1	11		22	40

Agencies	Total Area of Reserve Acres	Acres Under Wood	Acres Cleared but not Cultivated	Acres Under Actual Cultivation	Acres Fenced	Private Property							Public Property					
						Stone, Brick, and Frame Dwellings	Other Dwellings	Outbuildings, etc.	Ploughs, Harrows, Drills, etc.	Mowers, Reapers, Binders, Threshers, etc.	Carts, Wagons, and Vehicles	Tools and Small Implements	Churches	Council Houses	School Houses	Saw Mills	Other Buildings	Engines and Machinery
ONTARIO—Concluded																		
Sturgeon Falls	61,800	61,318	.....	482	308	57	77	89	34	6	87	56	4	.....	3	.....	.....	.....
Thessalon	60,374	58,837	740	797	794	34	82	132	18	3	37	1,005	4	.....	5	.....	.....	1
Tyendinaga	17,604	7,134	2,630	7,840	13,720	237	.....	556	450	230	454	825	2	1	4	.....	3	2
Total	1,046,088	904,532	74,986	66,570	117,316	2,021	2,112	5,916	5,448	1,753	5,445	32,439	100	27	78	5	88	86
PRINCE EDWARD ISLAND	1,527	726	400	401	401	50	20	25	30	2	5	400	1	1	2	.....	3	2
QUEBEC																		
Becancourt	122	6	.....	116	90	5	1	7	4	2	5	50	.....	.....	.....			
Bersimis	63,197	61,530	1,561	106	62	.....	95	17	7	.....	20	350	1	.....	1		1	
Cacouna	300	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		.....	
Caughnawaga	12,327	1,230	6,602	4,405	5,050	555	.....	1,010	500	300	1,260	1,000	1	1	7	1	6	20
Jeune Lorette	27	.....	27	.....	20	89	.....	22	.....	.....	30	200	1	.....	1		1	2
Maniwaki	44,537	42,886	231	1,420	710	4	65	101	66	37	104	542	.....	1	2		2	
Maria	416	80	193	143	.....	1	40	16	17	5	7	105	1	.....	1		.....	
Mingan	.....	.....	.....	.....	.....	18	.....	6	.....	.....	.....	.....	1	.....	.....		.....	
Oka	.....	.....	.....	.....	.....	100	.....	110	75	35	140	1,000	1	.....	1		1	1
Pierreville	570	.....	354	225	275	72	0	50	15	5	15	200	2	1	2		.....	
Pointe Bleue	3,779	2,100	535	1,144	1,350	59	18	146	60	45	167	350	1	.....	1		1	6
Restigouche	8,856	8,200	50	600	606	94	8	190	30	4	87	250	1	1	1	1	4	3
Seven Islands	6	.....	6	.....	.....	40	.....	.....	.....	.....	.....	.....	1	.....	.....		.....	
St. Regis	6,938	80	5,340	1,518	590	195	32	237	479	193	300	1,475	2	1	6		11	9
Timiskaming	34,136	33,540	200	396	320	15	33	45	33	11	45	400	.....	.....	1		2	2
Total	175,220	149,952	15,189	10,079	9,073	1,247	292	1,957	1,286	637	2,180	5,922	13	5	24	2	29	43
SASKATCHEWAN																		
Assiniboine	40,897	27,264	10,969	2,664	12,775	11	34	102	68	76	152	398	.....	2	1		4	4
Battleford	172,736	20,150	149,422	3,164	35,410	3	251	279	296	273	385	1,325	5	.....	5	.....	13	8
Carlton	193,153	82,724	107,296	3,133	25,408	.....	270	410	245	198	401	1,238	5	1	6	1	18	5
Crooked Lake	112,442	14,200	91,720	6,522	16,100	6	185	244	243	173	267	221	1	.....	.....	.....	.....	.....
Duck Lake	109,098	25,991	79,651	3,456	23,104	7	149	284	307	136	371	443	3	1	4	.....	.....	7
File Hills Agency	65,614	25,000	39,839	775	13,662	10	39	50	25	44	108	350	1	.....	1	.....	.....	.....
File Hills Colony	18,840	2,000	12,548	4,292	14,302	17	16	109	114	66	96	320	2	.....	.....	.....	2	3
Moose Mountain	30,088	25,486	3,012	1,590	30,088	1	58	70	71	65	110	150	1	1	1	.....	3	2
Moose Woods	4,160	1,368	2,685	107	4,160	1	32	26	32	16	51	50	.....	.....	.....	.....	.....	.....
Onion Lake	197,834	40,018	156,279	1,537	11,250	3	183	133	66	86	355	1,650	.....	.....	.....	2	.....	1
Pelly	55,472	20,009	33,032	2,431	7,185	7	97	191	161	125	257	830	4	.....	3	.....	2	1
Qu'Appelle	63,817	6,200	47,880	9,737	30,460	32	136	216	261	183	500	990	.....	.....	.....	.....	.....	1
Touchwood	117,198	67,229	43,857	6,112	46,692	10	179	328	335	260	370	1,600	3	.....	4	.....	12	14
Total	1,181,349	357,639	778,190	45,520	270,596	108	1,629	2,472	2,224	1,701	3,432	9,481	25	5	25	3	54	52

RECAPITULATION

Provinces																	
Alberta	1,307,343	382,383	869,237	55,723	430,572	263	1,275	2,243	1,727	1,214	2,395	8,925	9	7	6	1	121	305
British Columbia	732,216	420,225	279,774	32,217	213,635	4,103	2,876	4,404	3,171	1,025	2,703	28,370	144	43	46	7	27	98
Manitoba	415,477	287,102	115,794	12,581	23,414	98	2,097	1,628	719	577	1,464	5,160	46	3	37	1	50	8
New Brunswick	20,782	17,523	1,562	1,697	1,222	338	37	209	98	26	144	1,062	7	6	11		7	
Nova Scotia	21,681	16,987	3,059	1,635	2,545	333	57	160	100	21	136	2,838	9	3	11	1	15	1
Ontario	1,046,088	904,532	74,986	66,570	117,316	2,021	2,112	5,918	5,448	1,753	5,445	32,439	100	27	78	5	88	86
Prince Edward Island	1,527	726	400	401	401	50	20	25	30	2	5	400	1	1	2	..	3	2
Quebec	175,220	149,952	15,189	10,079	9,073	1,247	292	1,957	1,286	637	2,180	5,922	13	5	24	2	29	43
Saskatchewan	1,181,349	357,639	778,190	45,520	270,596	108	1,629	2,472	2,224	1,701	3,432	9,481	25	5	25	3	54	52
Total	4,901,683	2,537,069	2,138,191	226,423	1,068,774	8,561	10,395	19,016	14,803	6,956	17,904	94,597	354	100	240	20	394	595

TABLE No. 4: LIVE STOCK AND POULTRY: GENERAL EFFECTS

Agencies	Horses			Cattle					Poultry	General Effects					
	Stallions	Geldings and Mares	Foals	Bulls	Steers and Work Oxen	Milch Cows	Young Stock	Other Stock		Motor and Sail Boats	Row Boats and Canoes	Rifles and Shot Guns	Steel Traps	Nets	Tents
ALBERTA															
Blackfoot	.....	3,507	254	31	311	666	586	.....	130	.....	.....	30	57	.....	175
Blood	10	3,466	350	24	349	829	279	30	200	.....	1	50	200	.....	275
Edmonton	1	500	11	8	16	255	188	127	717	.....	3	158	622	37	197
Hobbema	.....	960	145	.....	115	184	121	9	531	.....	.....	186	808	61	129
Lesser Slave Lake	.....	.....	22	5	17	70	117	.....	.....	.....	211	484	2,428	304	391
Peigan	8	1,106	108	20	.....	.....	.....	1,047	.....	.....	.....	48	154	.....	93
Saddle Lake	2	534	.....	6	56	158	238	39	425	.....	84	186	2,020	185	141
Sarcee	5	837	.....	9	.....	80	161	5	80	.....	.....	16	65	.....	70
Stony	15	1,000	100	.....	.....	138	168	.....	.....	.....	.....	162	1,000	.....	200
Total	41	11,844	990	103	864	2,380	1,858	1,257	2,083	.....	299	1,320	7,454	587	1,581
BRITISH COLUMBIA															
Babine	8	456	44	9	135	240	112	34	125	6	258	1,085	21,100	353	211
Bella Coola	8	475	52	5	29	168	53	3	400	146	180	625	4,100	80	100
Cowichan	3	213	43	3	.....	177	46	1,440	9,550	205	328	577	25	101	200
Kamloops	76	4,190	542	61	129	2,337	443	439	7,363	.....	56	303	111	.....	409
Kootenay	13	1,444	292	13	57	709	550	13	558	.....	56	176	270	.....	137
Kwawlewith	.....	.....	.....	.....	.....	2	6	6	290	127	330	282	2,720	221	109
Lytton	27	707	188	33	107	137	413	382	2,282	5	110	325	5,966	67	198
Nass River	3	12	4	3	.....	18	5	10	456	73	127	250	1,700	117	78
New Westminster	6	376	43	5	84	362	373	852	5,187	151	405	626	1,300	142	111
Okanagan	30	1,515	245	45	1,655	1,080	1,470	640	5,000	1	61	344	610	32	294
Queen Charlotte	.....	4	.....	2	9	50	30	.....	300	73	100	155	650	20	50
Skeena River	.....	.....	.....	.....	.....	.....	.....	.....	385	117	208	317	2,700	266	255
Stikine	.....	23	1	.....	.....	.....	.....	.....	.....	2	70	403	2,790	158	166
Stuart Lake	4	451	57	11	47	262	121	.....	143	7	245	614	4,910	291	172
West Coast	.....	.....	.....	9	.....	33	32	.....	1,096	265	1,272	782	2,274	236	199
Williams Lake	72	2,453	447	51	723	44	413	516	1,005	.....	38	330	4,165	20	239
Total	250	12,319	1,958	250	2,975	5,619	4,067	4,335	34,140	1,208	3,844	7,194	55,421	2,104	2,928
MANITOBA															
Birtle	5	438	27	5	61	61	102	22	995	.....	.....	105	1,175	.....	131
Clandeboye	.....	66	5	17	126	198	181	28	250	4	519	612	5,515	974	462
Fisher River	3	217	1	12	110	325	399	10	700	.....	67	165	1,550	900	96
Griswold	.....	267	.....	.....	.....	12	7	.....	265	.....	5	125	1,945	3	87
Manitowapah	4	431	22	15	42	441	514	51	845	62	349	363	5,625	1,195	235
Norway House	.....	.....	.....	2	12	26	18	.....	470	.....	780	970	2,650	1,940	605
Pas	3	120	2	2	11	141	248	.....	80	2	570	680	17,500	990	495
Portage la Prairie	1	208	10	.....	2	22	9	12	495	.....	17	106	1,300	.....	75
Total	16	1,747	67	53	364	1,226	1,478	123	3,800	68	2,307	3,226	37,260	6,002	2,186

NEW BRUNSWICK																
Northern Division	0	10				7	6	0	180	0	11	17	110	0	3	
North Eastern Division		28		2		27	15	7	200	35	85	160	300	300	37	
South Western Division		4				3		2	75		25	69	810		24	
Total	0	42		2		37	21	9	455	35	121	246	1,220	300	64	
NOVA SCOTIA																
Annapolis									30		2	10	40		6	
Antigonish and Guysboro		3			6	5	4	28	155	1	5	28	26	7	5	
Cape Breton (Eskasoni)		5	2	2	5	24	15		104	3	5	14	50	5	1	
Cape Breton (Sydney)																
Colchester		10				2					2	20	60		1	
Cumberland		2				1					3	8	25			
Digby							1		60		7	10	200		6	
Halifax		2				9	10		125		3	6	20			
Hants		4				5	2	1	50	1	3	25	200	12	3	
Inverness		12	1			19	13		51	1	23	30	420	2	1	
Kings		3			1	3	3		30		3	12	100		1	
Lunenburg		5			3	10	6	11	95		6	8	17	3	2	
Pictou		2							35	1	12	33	128	4		
Queens		1		2	2	4	4	4	50		5	15	10	5	10	
Richmond		13			2	15	10		50	5	12	25	75	10		
Shelburne		1			1						21	10	50			
Victoria		7	2	1	3	16	10		50		8	25	130		1	
Yarmouth						2	1		50		10	20	3	20	10	
Total		70	5	5	23	115	79	44	935	12	111	299	1,554	68	47	
ONTARIO																
Alnwick		42			1	39	34	19	615	3	22	38	2,095		9	
Cape Croker	1	150	10	3	2	90	150	120	500	10	20	25	100	80	10	
Caradoc	4	322	13	3	62	149	55	105	3,875	0	5	193	640	0	8	
Chapleau						4	12	3	250	12	300	350	3,500	150		
Christian Island		50	2	1	10	12	20	80	500	18	15	40	200	12	10	
Fort Frances	12	89	12	1	3	9	20			6	235	269	3,810	507	197	
Fort William		20		1		20		21	370	21	332	487	820	310	240	
Georgina Island		34		1		27	37	12	352	4	12	17	268	13	12	
Golden Lake		12				15	6		200	1	15	40	150		20	
Gore Bay		124		3	5	66	67	133	530	12	14	56	215	49		
Kenora	1	84		5	9	14	3	4	13	8	280	300	7,150	365	220	
Manitowaning	1	462	62	16	75	206	208	444	1,873	108	116	325	2,141	232	83	
Moravian	2	95	3		11	55	0	30		2	35	75	12			
New Credit	1	133	7	1	16	126	56	96	844		2	20	160			
Parry Sound	1	76	4	5	8	50	60	48	500	8	46	240	1,100	26	38	
Raina		15	4			10	18		450		30	70	1,250		25	
Rice Lake		45	5	2		75	140	140	975	4	81	99	6,200		24	
Sarnia	4	388	55	6	50	215	190	240	3,200	7	115	230	8,200	30	10	
Saugeen	1	115	12		8	55	45	50	600		6	70	400	10	15	
Sault Ste. Marie		145	6	5	17	82	30		1,100	31	90	139	2,400	270	40	
Savanne		3		1		2	1			5	291	428	8,362	391	268	
Seujoq		5	1			5	3		110		11	10	800		6	
Six Nations	9	910	280	30	470	1,100	940	1,620	39,000		28	200	380		4	
Sturgeon Falls	7	66	6	11	14	58	64		750	29	180	315	1,750	140	155	
Thessalon		46	10	3	0	32	8	37	539	33	99	118	830	228	68	
Tyendinaga		310	15	40	30	600	250	400	5,000	7	30	55	1,500	15	3	
Total	44	3,741	507	138	791	3,116	2,426	3,602	62,146	329	2,410	4,209	54,433	2,828	1,375	

TABLE No. 4: LIVE STOCK AND POULTRY: GENERAL EFFECTS—*Continued*

Agencies	Horses			Cattle					Poultry	General Effects					
	Stallions	Geldings and Mares	Foals	Bulls	Steers and Work Oxen	Milch Cows	Young Stock	Other Stock		Motor and Snil Boats	Row Boats and Canoes	Rifles and Shot Guns	Steel Traps	Nets	Tents
PRINCE EDWARD ISLAND	.....	13	1	.....	.....	20	21	2	198	7	13	13	12	35	.....
QUEBEC															
Becancourt	.....	3	.....	1	.....	12	6	2	20	.....	2	4	20	.....	.....
Bersimis	.....	8	1	1	.....	14	9	.....	107	2	183	165	2,250	16	172
Cacouna	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	14	17	136	.....	.....
Caughnawaga	6	350	100	200	150	1,050	400	1,000	10,000	5	50	200	150	6	6
Jeune Lorette	1	5	.....	1	.....	8	.....	.....	300	.....	10	30	500	.....	6
Maniwaki	1	64	3	5	.....	65	37	38	447	.....	75	125	1,989	37	66
Maria	.....	3	1	2	8	17	16	48	105	.....	12	16	264	4	3
Mingan	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	50	75	2,500	.....	50
Oka	2	90	15	5	.....	75	60	40	300	.....	35	40	60	.....	4
Pierreville	.....	10	5	6	.....	35	15	6	75	.....	15	25	75	.....	3
Pointe Bleue	3	61	15	10	17	135	60	130	800	1	200	500	8,500	200	250
Restigouche	.....	21	5	7	8	38	37	43	200	.....	19	31	250	.....	7
Seven Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	300	500	10,000	200	250
St. Regis	4	190	12	20	16	275	180	265	1,500	25	90	70	1,000	45	20
Timiskaming	.....	28	.....	1	.....	13	12	45	160	3	167	345	3,500	195	130
Total	17	833	157	250	199	1,737	832	1,617	14,014	50	1,222	2,163	31,194	703	967
SASKATCHEWAN															
Assiniboine	.....	336	25	5	.....	119	103	19	180	.....	.....	32	260	.....	34
Battleford	4	933	.....	.....	42	325	344	220	605	.....	32	220	2,500	135	205
Carlton	1	648	.....	15	44	544	744	.....	1,104	.....	69	301	2,925	159	186
Crooked Lake	.....	441	9	5	50	235	210	93	705	.....	.....	143	116	22	192
Duck Lake	2	405	.....	1	116	296	332	37	619	.....	7	148	1,900	.....	70
File Hills Agency	.....	141	9	4	39	93	71	.....	110	.....	.....	56	95	.....	34
File Hills Colony	1	215	15	2	43	124	111	.....	300	.....	.....	21	25	.....	10
Moose Mountain	1	140	.....	2	44	78	93	.....	100	.....	.....	50	300	7	48
Moose Woods	1	94	.....	.....	26	67	83	.....	165	.....	4	17	98	.....	16
Onion Lake	1	579	.....	8	88	290	322	.....	1,450	.....	85	328	6,000	157	169
Pelly	.....	234	.....	8	42	165	96	.....	580	.....	.....	168	2,200	.....	107
Qu'Appelle	2	513	.....	12	27	304	286	10	320	.....	5	122	550	20	150
Touchwood	7	680	49	11	91	256	289	32	695	.....	.....	250	4,873	15	185
Total	20	2,359	107	73	652	2,896	3,084	411	6,933	.....	202	1,856	21,842	515	1,406

RECAPITULATION

Provinces															
Alberta	41	11,844	990	103	864	2,380	1,858	1,257	2,083	.....	299	1,320	7,454	587	1,581
British Columbia	250	12,319	1,958	250	2,975	5,619	4,067	4,335	34,140	1,208	3,841	7,194	55,421	2,104	2,928
Manitoba	16	1,747	67	53	361	1,226	1,478	123	3,800	68	2,307	3,226	37,260	6,002	2,186
New Brunswick	0	42	.	2	.....	37	21	9	455	35	121	246	1,220	300	64
Nova Scotia	.....	70	5	5	23	115	79	44	935	12	111	299	1,551	68	47
Ontario	41	3,741	507	138	791	3,116	2,426	3,602	62,146	329	2,410	4,209	54,433	2,828	1,375
Prince Edward Island	.....	13	1	.....	.....	20	21	2	198	7	13	13	12	35	.....
Quebec	17	833	157	259	199	1,737	832	1,617	14,014	50	1,222	2,163	31,194	703	967
Saskatchewan	20	2,359	107	73	652	2,896	3,084	411	6,933	.....	202	1,856	21,842	515	1,406
Total	388	32,968	3,792	883	5,868	17,146	13,866	11,400	124,704	1,709	10,529	20,526	210,390	13,142	10,554

Table No. 5: VALUE OF REAL AND PERSONAL PROPERTY AND PROGRESS DURING YEAR

Agencies	Total Value of Lands in Reserves	Value of Private Fencing	Value of Private Buildings	Value of Public Buildings Property of the Band	Value of Implements and Vehicles	Value of Live Stock and Poultry	Value of General Effects	Value of Household Effects	Total Value of Real and Personal Property	Progress During Year 1921		
										Value of New Land Improvements	Value of Buildings Erected	Total Increase in Value
ALBERTA	$	$	$	$	$	$	$	$	$	$	$	$
Blackfoot	2,300,000	23,640	269,900	12,000	143,971	150,593	5,000	24,000	2,929,104	5,225	160,000	165,225
Blood	7,081,720	15,000	55,000	36,000	83,000	160,000	15,000	15,000	7,460,720	3,500	4,000	7,500
Edmonton	1,183,483	12,445	57,950	11,175	28,912	36,570	5,882	9,180	1,345,597	395	2,500	2,895
Hobbema	917,040	27,677	27,120	.....	60,297	39,114	10,122	9,098	1,090,468	6,290	2,610	8,900
Lesser Slave Lake	2,393,302	9,230	.....	48,100	16,999	43,045	23,396	22,050	2,557,022	489	3,650	4,139
Peigan	977,535	4,687	34,337	28,970	42,812	78,540	13,219	10,595	1,190,695	.....	.....	.....
Saddle Lake	890,907	2,960	26,220	.....	20,325	41,362	4,370	6,873	993,017	545	.....	545
Sarcee	1,180,120	11,000	20,000	36,500	14,000	12,069	800	1,500	1,275,989	.....	.....	.....
Stony	264,774	8,000	15,300	500	13,000	41,125	3,000	10,000	355,699	.....	.....	.....
Total	17,188,881	114,639	505,827	173,245	423,316	603,318	80,789	108,296	19,198,341	10,444	172,760	189,204
BRITISH COLUMBIA												
Babine	78,466	7,500	131,500	9,250	16,750	51,395	49,875	30,800	375,836	.....	.....	.....
Bella Coola	356,600	2,850	105,000	10,000	12,800	15,875	99,000	44,000	646,125	250	4,500	4,750
Cowichan	1,762,700	116,800	174,100	7,500	51,550	49,000	41,550	60,750	2,264,850	6,950	2,100	9,050
Kamloops	3,475,203	54,165	119,715	44,435	105,089	350,204	16,282	18,090	4,186,273	15,200	.....	15,200
Kootenay	142,085	14,481	10,460	117,700	21,766	79,965	7,650	6,780	409,867	.....	.....	.....
Kwawlewith	265,879	1,360	96,515	4,000	12,200	545	51,600	66,200	498,299	.....	5,100	5,100
Lytton	967,508	18,940	72,630	22,930	29,874	75,045	10,375	19,875	1,217,177	6,950	3,375	10,325
Nass River	300,665	9,500	122,000	46,000	1,300	5,150	97,600	24,500	606,715	.....	.....	.....
New Westminster	1,614,305	12,951	141,000	58,700	13,000	55,315	47,260	63,200	2,005,731	.....	.....	.....
Okanagan	1,919,435	41,950	188,500	30,000	43,500	262,500	7,650	19,000	2,512,535	9,950	5,300	15,250
Queen Charlotte	80,000	1,700	33,000	8,000	40,000	7,500	19,000	19,000	208,200	5,000	9,000	14,000
Skeena River	765,656	7,150	106,560	55,590	2,000	820	77,000	31,000	1,136,376	.....	500	500
Stikine	2,075	60	19,788	.....	5,113	2,770	15,916	28,856	74,587	1,300	.....	1,300
Stuart Lake	252,590	12,160	82,570	24,650	11,405	33,080	21,107	21,710	459,272	3,535	2,800	6,335
West Coast	114,000	3,635	107,500	.....	1,410	4,430	60,400	31,650	323,025	50	900	950
Williams Lake	829,910	162,645	42,250	7,000	28,750	82,675	8,800	12,700	1,174,730	113,584	.....	113,584
Total	12,927,107	467,827	1,652,388	445,755	400,107	1,077,178	631,065	498,111	18,099,598	162,769	33,575	196,344
MANITOBA												
Birtle	496,486	1,155	14,400	1,200	14,960	30,828	2,320	2,775	564,124	1,322	445	1,767
Clandeboye	294,285	4,420	119,300	6,900	6,520	5,615	11,100	21,850	469,990	1,245	5,700	6,945
Fisher River	811,000	13,375	52,440	11,800	15,575	31,570	12,700	22,350	970,810	540	.....	540
Griswold	214,395	1,080	16,000	7,200	20,000	23,000	2,300	4,100	294,675	320	.....	320
Manitowapah	444,601	2,565	29,175	16,100	14,320	71,300	14,500	12,300	604,861	195	1,000	1,195
Norway House	52,416	595	43,700	1,100	1,530	14,510	49,348	14,600	177,799	.....	1,560	1,560
Pas	266,050	4,180	37,100	9,600	5,400	27,980	68,600	20,500	439,410	.....	1,250	1,250
Portage la Prairie	354,040	3,470	9,500	9,900	19,550	22,750	1,550	4,050	424,810	.....	100	100
Total	2,933,273	30,840	321,615	63,800	104,455	227,553	162,418	102,525	3,946,479	3,622	10,055	13,677

NEW BRUNSWICK												
Northern Division	17,160	145	11,500	11,200	1,100	1,850	585	2,500	46,340	200	160	360
North Eastern Division	46,240	2,335	28,000	32,750	5,300	4,500	7,500	17,300	143,925	150	150	300
South Western Division	6,900	205	9,125	16,000	400	695	1,242	1,625	36,192	.....	.....	.....
Total	70,600	2,685	48,625	59,950	6,800	7,045	9,327	21,425	226,457	350	310	660
NOVA SCOTIA												
Annapolis	1,000	20	1,350	.....	100	15	200	150	2,835	50	.....	50
Antigonish and Guysboro'	7,700	1,040	2,400	3,000	250	625	350	600	15,965	.....	400	400
Cape Breton (Eskasoni)	13,000	400	5,000	9,000	2,000	2,000	700	900	33,000	200	100	300
Cape Breton (Sydney)	8,500	.....	5,000	.....	.....	.....	1,500	1,250	16,250	.....	.....	.....
Colchester	3,000	200	5,000	1,000	500	400	400	500	11,000	.....	600	600
Cumberland	1,200	.....	1,075	.....	140	200	145	200	2,960	.....	.....	.....
Digby	1,800	60	2,000	1,000	50	60	300	6,570	12,440	.....	.....	.....
Halifax	1,350	890	5,100	.....	350	1,050	1,730	2,650	13,720	.....	.....	.....
Hants	10,510	500	5,000	2,500	1,900	2,000	700	2,500	25,610	50	200	250
Inverness	9,725	1,100	14,400	1,500	575	2,850	750	800	34,700	.....	.....	.....
Kings	4,500	200	2,000	.....	300	600	800	800	9,200	.....	.....	.....
Lunenburg	3,450	325	3,550	800	148	715	700	1,500	11,188	.....	.....	.....
Pictou	1,500	50	10,150	8,450	450	115	990	1,875	23,580	.....	.....	.....
Queens	1,000	700	3,000	12,000	1,000	1,500	1,500	1,000	21,700	100	125	225
Richmond	7,000	250	3,850	12,000	1,000	2,250	1,000	800	28,150	75	1,250	1,325
Shelburne	.....	.....	1,200	.....	50	100	600	500	2,450	.....	.....	.....
Victoria	6,500	375	2,500	3,240	450	1,600	780	700	16,045	100	20	120
Yarmouth	150	.....	150	.....	50	.....	.....	300	650	.....	.....	.....
Total	81,894	6,110	72,725	58,090	9,313	16,580	13,145	23,655	281,512	575	2,695	3,270
ONTARIO												
Alnwick	75,000	5,000	27,450	4,000	4,855	6,590	1,570	10,550	135,015	.....	300	300
Cape Croker	135,000	7,000	60,000	33,000	6,500	26,000	10,000	10,000	287,500	5,000	1,500	6,500
Caradoc	148,750	15,475	101,200	.....	25,100	24,660	1,185	30,750	347,060	2,750	5,000	7,750
Chapleau	18,400	350	1,100	800	.....	200	5,000	.....	25,850	.....	.....	.....
Christian Island	30,000	1,200	8,000	7,000	3,000	7,000	2,500	3,000	61,700	300	600	900
Fort Frances	238,773	1,200	24,000	8,300	14,960	8,200	6,980	8,400	310,813	6,000	.....	6,000
Fort William	182,000	600	25,000	3,000	1,900	5,500	7,000	8,000	233,000	.....	.....	.....
Georgina Island	35,000	600	15,000	5,000	1,000	4,800	1,000	1,500	65,900	.....	.....	.....
Golden Lake	500	500	2,000	3,100	1,000	2,000	1,500	2,000	17,400	.....	.....	.....
Gore Bay	80,000	15,020	30,000	22,700	10,200	17,550	7,300	15,600	198,370	260	195	455
Kenora	123,174	975	41,640	350	5,150	6,680	28,000	20,500	225,469	14	1,190	1,204
Manitowaning	247,000	21,020	68,650	33,000	47,475	48,205	20,760	45,100	531,210	1,440	650	2,090
Moravian	95,300	5,895	32,000	7,500	10,000	15,000	1,200	2,000	168,895	100	1,000	1,100
New Credit	230,000	11,600	48,000	10,000	12,200	21,370	800	14,000	348,570	385	1,350	1,735
Parry Sound	121,000	950	23,700	17,300	4,460	12,800	6,990	17,500	204,700	.....	.....	.....
Rama	50,000	4,000	20,400	13,200	2,000	2,400	2,000	7,250	101,250	.....	200	200
Rice Lake	115,000	4,000	45,000	11,000	7,500	23,500	7,250	11,000	224,250	.....	.....	.....
Sarnia	640,250	14,900	85,900	33,500	24,500	30,550	5,500	30,200	865,300	150	7,000	7,150
Saugeen	75,000	1,600	16,000	27,000	4,200	17,000	2,500	4,500	147,800	200	500	700
Sault Ste. Marie	54,900	2,600	27,000	25,500	6,650	14,750	9,520	12,775	153,695	.....	.....	.....
Savanne	101,885	278	8,625	25	3,215	480	29,336	18,222	162,066	.....	350	350
Seugog	68,000	1,798	2,000	500	400	900	300	950	74,848	.....	.....	.....
Six Nations	1,092,400	436,960	640,000	58,000	297,000	200,650	4,500	77,150	2,846,660	800	6,000	6,800
Sturgeon Falls	242,190	2,350	44,000	11,500	5,300	15,300	20,000	40,000	380,640	.....	3,000	3,000
Thessalon	129,064	9,705	12,700	10,000	3,060	10,020	12,433	8,163	195,145	520	.....	520
Tyendinaga	645,300	134,825	97,000	44,800	42,800	80,000	2,645	55,800	1,103,170	.....	3,000	3,000
Total	4,978,386	700,701	1,546,965	390,075	544,425	601,045	197,079	454,910	9,414,180	17,910	31,835	49,754

TABLE No. 5: VALUE OF REAL AND PERSONAL PROPERTY AND PROGRESS DURING YEAR—*Concluded*

Agencies	Total Value of Lands in Reserves	Value of Private Fencing	Value of Private Buildings	Value of Public Buildings Property of the Band	Value of Implements and Vehicles	Value of Live Stock and Poultry	Value of General Effects	Value of Household Effects	Total Value of Real and Personal Property	Progress During Year 1921		
										Value of New Land Improvements	Value of Buildings Erected	Total Increase in Value
	$	$	$	$	$	$	$	$	$	$	$	$
PRINCE EDWARD ISLAND	20,000	1,800	11,000	11,000	1,200	3,500	3,250	3,800	55,550	100	400	500
QUEBEC												
Bécancour	4,000	140	3,600		290	1,100	50	100	9,280			
Bersimis	51,000	030	33,000	3,000	610	2,400	8,500	11,500	110,340	700	10,000	10,700
Cacouna	6,000			3,650	150	200		1,230	11,230			
Caughnawaga	750,500	9,250	430,000	70,500	40,500	130,000	22,000	100,000	1,552,750	500	10,500	11,000
Jeune Lorette	27,000	500	43,000	25,000	2,500	1,200	1,200	13,000	113,400			
Maniwaki	33,895	4,270	19,485	2,095	9,723	11,725	6,625	12,690	100,508	1,630	2,250	3,880
Maria	26,000	870	4,100	2,550	950	1,050	600	1,900	38,020	155	75	230
Mingan			4,000	2,000			7,525	5,000	18,525			
Oka		4,000	40,000	3,500	10,000	20,000		5,000	82,500	700	200	900
Pierreville	32,000	1,200	60,000	2,500	1,000	3,500	2,000	15,000	117,200	500	600	1,100
Pointe Bleue	38,000	5,900	31,000	6,000	8,000	12,000	15,000	13,000	128,900	3,000	4,000	7,000
Restigouche	173,000	12,100	51,000		15,000	11,000	18,000	17,000	297,100			
Seven Islands	500		3,500	1,000			6,000	12,000	23,000			
St. Regis	235,000	1,600	90,000	15,000	11,000	32,000	3,000	20,000	407,600		10,000	10,000
Timiskaming	33,000	1,200	8,000	1,250	3,500	6,350	9,215	4,000	66,515	1,750	1,000	2,750
Total	1,409,895	41,660	820,685	138,045	103,223	232,225	99,715	231,420	3,076,868	8,935	38,625	47,560
SASKATCHEWAN												
Assiniboine	416,340	5,757	10,350	4,180	21,900	67,656	785	7,875	543,843	885	320	1,205
Battleford	1,506,518	12,050	25,600	175	44,660	86,250	10,250	15,200	1,700,703	1,100	1,885	3,285
Carlton	1,545,224	13,019	65,730	31,900	29,900	67,280	7,332	15,941	1,776,335	560	1,350	1,910
Crooked Lake	1,086,662	34,000	58,320	8,800	51,750	94,700	3,800	12,500	1,350,532	3,670	1,400	5,070
Duck Lake	1,769,815	20,268	35,450	17,900	32,967	81,150	3,832	11,550	1,972,932	1,065		1,065
File Hills Agency	607,470	6,100	12,600	2,100	8,500	16,130	1,300	5,000	658,600	124	200	324
File Hills Colony	376,800	600	55,000	6,000	20,000	28,000	600	8,000	495,000	1,420	300	1,720
Moose Mountain	250,800	2,600	9,500	3,000	9,000	30,000	2,000	4,500	312,300	200	400	600
Moose Woods	62,495	6,996	5,850		5,151	18,684	513	2,100	101,789			
Onion Lake	2,191,740	15,850	44,575	3,900	25,255	82,180	9,085	13,200	2,385,785	3,245	975	4,220
Pelly	699,824	4,200	28,675	3,700	23,400	27,710	5,300	13,000	775,809		150	450
Qu'Appelle	949,730	13,160	37,500	4,000	46,500	57,225	4,405	14,200	1,126,720	4,630	600	5,230
Touchwood	1,190,255	10,785	27,805	1,650	56,818	140,000	20,000	22,900	1,479,213	3,500	1,440	4,940
Total	12,623,673	154,385	425,355	87,305	376,710	796,965	69,202	145,966	14,679,561	20,699	9,320	30,019

RECAPITULATION

Provinces												
Alberta	17,188,881	114,639	505,827	173,245	423,316	603,318	80,789	108,296	19,198,311	16,441	172,760	189,201
British Columbia	12,927,167	467,827	1,652,388	445,755	400,107	1,077,178	631,065	198,111	18,099,598	162,769	33,575	196,344
Manitoba	2,933,273	30,840	321,615	63,800	104,455	227,553	162,418	102,525	3,946,479	3,622	10,055	13,677
New Brunswick	70,600	2,685	48,625	59,950	6,800	7,045	9,327	21,425	226,457	350	310	660
Nova Scotia	81,894	6,110	72,725	58,090	9,313	16,580	13,145	23,655	281,512	575	2,695	3,270
Ontario	1,978,386	700,701	1,546,965	390,075	544,425	601,045	197,679	154,910	9,414,186	17,919	31,835	49,754
Prince Edward Island	20,000	1,800	11,000	11,000	1,200	3,500	3,250	3,800	55,550	100	400	500
Quebec	1,409,895	41,660	820,685	138,045	103,223	232,225	99,715	231,420	3,076,868	8,935	38,625	47,560
Saskatchewan	12,623,673	154,385	425,355	87,305	376,710	796,965	69,202	145,966	11,679,561	20,699	9,320	30,019
Total	52,233,769	1,520,647	5,405,185	1,427,265	1,969,549	3,565,409	1,266,590	1,590,108	68,978,522	231,413	299,575	530,988

TABLE No. 6: SOURCES AND VALUE OF INCOME

Agencies	Value of Farm Products, including Hay	Value of Beef sold also of that used for Food	Wages Earned	Received from Land Rentals and from Timber	Earned by Fishing	Earned by Hunting and Trapping	Earned by other Industries and Occupations	Annuities paid and Interest on Indian Trust Funds	Total Income of Indians
ALBERTA	$	$	$	$	$	$	$	$	$
Blackfoot	74,641	8,372	6,100	30,116		200	25,000	58,718 79	203,147 79
Blood	50,000	11,758	20,000	14,793		1,000	15,000	7,183 81	119,734 81
Edmonton	48,695	9,395	10,174		635	2,525	9,855	26,362 12	107,644 12
Hobbema	32,040	2,260	1,456	5,029	5,510	407	17,680	14,528 53	78,910 53
Lesser Slave Lake	19,619	2,160	22,050	270	5,950	170,850		13,740 00	234,639 00
Peigan	4,846	5,402	24,480	450				6,677 35	41,855 35
Saddle Lake	33,256	7,390	9,460		1,510	5,940	5,107	4,216 17	66,879 17
Smoky	6,081	2,097	2,080	3,500		500	4,355	1,241 34	19,854 34
Stony	860	2,364	28,379	500		5,294	13,719	3,802 50	54,918 50
Total	270,038	51,198	124,179	54,658	13,605	186,716	90,710	136,470 61	927,580 61
BRITISH COLUMBIA									
Babine	53,220	2,300	60,000	50	8,600	80,000	23,300	162 73	227,632 73
Bella Coola	5,725	1,250	10,000	476	73,000	23,500	69,500	243 96	184,594 96
Cowichan	45,000	3,200	86,500	12,959	41,050	1,450	6,500	4,094 16	200,753 16
Kamloops	205,717			24,019		3,000		1,230 98	233,966 98
Kootenay	40,914	12,905	28,660	50	975	4,050	2,700	50 22	90,244 22
Kwawlewith	410		18,750	1,662	48,000	6,430	48,900	1,526 12	125,678 12
Lytton	48,700	11,960	80,900	6,073		5,800	12,400	989 56	166,822 56
Nass River	18,070	500	9,500	12,500	45,030	8,000		3,512 82	97,122 82
New Westminster	37,500	3,600	68,700	33,833	43,450	17,400	48,450	8,241 49	261,174 49
Okanagan	119,650	8,150	20,050	3,457	75	1,525	900	629 48	154,436 48
Queen Charlotte	8,000	5,000	13,000	500	17,000	3,000	7,000	79 81	53,579 81
Skeena River	23,750		62,600		71,990	101,990	37,500		297,830 00
Stikine	3,210		24,173		9,050	65,250	11,505		113,188 00
Stuart Lake	28,049	7,280	21,915		15,770	30,730	5,000	2,216 10	110,960 10
West Coast	268	71		371	114,300	145	4,905	89 21	120,149 21
Williams Lake	56,255	4,810	50,380			27,350	9,900	42 66	148,737 66
Total	694,438	61,026	555,908	95,950	488,290	379,620	288,460	23,109 30	2,586,801 30
MANITOBA									
Birtle	27,793	1,060	5,765	857	480	2,300	4,000	4,091 14	46,346 14
Chandeboye	17,430	2,425	28,100	1,098	14,800	29,560	8,250	12,406 75	114,069 75
Fisher River	25,356	5,410	22,200	100	11,000	5,500	8,450	9,706 66	85,722 66
Griswold	18,384	550	5,500		475	3,100	1,750	2 71	29,761 71
Manitowapah	34,877	3,890	17,150		7,100	4,375	5,850	9,720 45	82,962 45
Norway House	3,697	150	21,500		21,000	240,000	14,700	12,760 00	313,807 00
Pas	15,450	2,500	34,500	8,039	5,000	79,000	6,500	14,065 32	165,054 32
Portage la Prairie	18,215	56	6,500	670		1,050	2,400	9,321 78	38,206 78
Total	159,202	16,035	141,215	10,764	59,855	364,885	51,900	72,104 84	875,960 84

New Brunswick									
Northern Division	2,500		3,540	291	60	100	850	1,495 77	8,836 77
Northeastern Division	5,000	500	10,000	150	4,000	1,000	2,000	571 36	23,221 36
Southwestern Division	1,100		13,000	68	150	1,200	2,575	42 70	18,135 70
Total	8,600	500	26,540	509	4,210	2,300	5,425	2,109 83	50,193 83
Nova Scotia									
Annapolis	238		1,500			150	225		2,113 00
Antigonish and Guysboro	896	100	1,700		550	350	3,150	51 91	6,791 91
Cape Breton (Eskasoni)	2,000	450	1,500		200	230	2,000		6,380 00
Cape Breton (Sydney)			15,000					19 98	15,019 98
Colchester	500		5,000			400	6,600		12,500 00
Cumberland	180		2,050			140	1,150	82 77	3,602 77
Digby	400		3,500		3,500	700	1,500		9,600 00
Halifax	2,000	2,300	12,200	26	100		8,900	601 78	26,130 78
Hants	1,800		300		300	3,000	600		6,000 00
Inverness	1,600	200	3,000		2,700	250	1,400		9,150 00
Kings	500	75	4,000		100	700	500		5,875 00
Lunenburg	1,010	115	2,000	37	350	350	2,060		5,922 00
Pictou	399		1,000		800	550	9,000		11,749 00
Queens	1,000	100	1,000		200	100	300	174 75	3,074 75
Richmond	1,570	54	440		215	8	60		2,347 00
Shelburne	100		1,000		250	350	400		2,100 00
Victoria	2,700	250	7,500		300	325	2,000	21 90	13,096 90
Yarmouth			200		100		100		400 00
Total	16,887	3,644	62,890	63	9,665	7,603	40,145	95,609	141,853 09
Ontario									
Alnwick	4,910	159	5,520	2,083	175	1,420	162	7,609 39	22,038 39
Cape Croker	6,000	3,000	8,000	115	9,000	500	2,000	22,191 46	50,806 46
Caradoc	34,700	2,440	93,250	4,602	340	1,425	2,650	3,639 38	143,046 38
Chapleau	1,600		5,000	272	500	30,000		13,141 00	50,516 00
Christian Island	2,650	200	4,500	5,814	200	200	2,000	7,869 10	23,433 10
Fort Frances	6,200		35,000	1,100	41,400	41,000	4,000	8,427 09	140,127 09
Fort William	1,600	1,500	38,000	1,000	30,000			10,988 20	83,088 20
Georgina Island	790	400	2,500	126	400	400	900	1,645 76	7,161 76
Golden Lake	800		2,000	80		5,000		11 14	7,891 14
Gore Bay	11,230	775	26,900	1,488		135		10,018 22	50,546 23
Kenora	5,425	180	48,000	20	41,000	61,000	34,500	15,037 28	205,762 28
Manitowaning	23,259	18,640	129,485	2,550	6,860	12,125	16,550	22,574 33	232,043 33
Moravian	10,899	600	15,000	75	250	250	500	5,393 41	32,874 41
New Credit	21,567	2,800	21,000	3,212		300	3,000	5,212 40	57,091 40
Parry Sound	8,885	2,100	38,500	15,371	750	3,800		12,736 54	82,142 54
Rama	7,000		15,000	843	2,200	4,000	5,000	3,356 76	37,399 76
Rice Lake	19,310	4,600	16,000	213	1,600	8,750	5,500	3,020 80	58,993 80
Sarnia	34,875	3,500	50,750	2,809	1,000	900	9,200	13,830 72	116,864 72
Saugeen	6,500	1,000	18,000	7,000	800	1,300	3,000	17,459 79	55,059 79
Sault Ste. Marie	14,200	2,000	18,000	215	13,000	23,000	9,500	14,630 01	94,545 01
Savanne	2,210		39,150		39,850	8,450	11,350	5,765 00	108,775 00
Scugog	532	530	900	40	60	800	1,000	703 32	4,465 32
Six Nations	290,000		155,000	5,200				41,708 44	491,908 44
Sturgeon Falls	11,600	1,450	32,500	1,000	4,000	98,000	9,000	58,841 50	216,391 50
Thessalon	8,800		23,500	500	1,300	21,250	1,600	6,337 79	63,287 79
Tyendinaga	90,000	4,500	48,000	8,379	2,500	1,500	1,000	6,062 13	161,941 13
Total	625,452	50,374	889,355	64,107	197,185	328,505	122,412	318,815 97	2,596,205 97

Table No. 6: SOURCES AND VALUE OF INCOME—*Concluded*

Agencies	Value of Farm Products, including Hay	Value of Beef sold also of that used for Food	Wages Earned	Received from Land Rentals and from Timber	Earned by Fishing	Earned by Hunting and Trapping	Earned by other Industries and Occupations	Annuities paid and Interest on Indian Trust Funds	Total Income of Indians
	$	$	$	$	$	$	$	$	$
Prince Edward Island	4,500	750	1,450		750	600	5,100		13,150 00
Quebec									
Becancourt	1,367	60	250		50	35		378 31	2,140 31
Bersimis	1,300	300	4,500	7,201		109,000	3,500	6,295 91	132,096 91
Caconna			2,400	5	20	350	1,500	456 64	4,731 64
Caughnawaga	50,000	15,000	125,000	7,465	400	500	15,000	901 80	214,266 80
Jeune Lorette			20,000			2,500	17,000	890 20	40,390 20
Maniwaki	8,830	217	34,076	5,080	125	31,615	1,401	2,808 67	84,146 67
Maria	1,520	200	1,620		365	485	1,330		5,520 00
Mingan			150			10,000			10,150 00
Oka	8,000	2,000	20,000		100	100	600	411 91	31,211 91
Pierreville	2,000	1,500	500	589		600	6,000	216 56	11,405 56
Pointe Bleue	19,000	3,000	15,000	1,920	1,200	43,000	3,000	523 51	86,643 51
Restigouche	14,700	1,200	4,300	5,100	300	1,500	6,000	142 51	33,242 51
Seven Islands			500			15,000			15,500 00
St. Regis	66,000	14,500	110,000	412	3,700	4,000	10,000	3,370 00	220,982 00
Timiskaming	4,675	250	9,000	796	350	26,500	375	2,003 76	43,949 76
Total	177,392	38,227	347,290	28,508	6,610	245,185	74,706	18,399 87	936,317 87
Saskatchewan									
Assiniboine	18,047	13,961	2,485			30	12,140	1,713 10	48,376 10
Battleford	61,393	5,660	18,700	16,263	5,900	6,550	3,300	9,296 68	127,062 68
Carlton	49,152	5,894	6,350		1,400	11,400	13,323	16,483 98	103,962 98
Crooked Lakes	30,771	4,852	5,200	16,483	1,150	5,100		31,185 61	94,741 61
Duck Lake	57,100	5,700	13,500	818	800	8,800	11,800	8,165 63	106,683 63
File Hills Agency	5,800	1,850	600			550	2,550	1,688 48	13,038 48
File Hills Colony	20,000	2,400	3,000				1,500		26,900 00
Moose Mountain	16,650	3,000	1,000	1,000	500	1,500	3,500	2,922 39	30,072 39
Moose Woods	6,000	2,300	3,000		100		2,000		31,400 00
Onion Lake	43,054	11,450	17,350	579	12,800	50,700	7,100	5,097 56	148,130 56
Polly	35,000	3,125	14,500	5,348		9,700	3,500	12,219 32	83,392 32
Qu'Appelle	56,816	2,060	10,100	818	1,100	1,750	6,355	25,480 69	104,509 69
Touchwood	37,879	12,367	23,133	7,903	2,000	13,000	48,550	12,402 77	157,234 77
Isle a la Cross District								11,135 00	11,135 00
Total	437,662	74,619	118,878	49,242	25,750	109,080	115,618	137,791 21	1,068,640 21

RECAPITULATION

Alberta	270,038	51,198	124,179	54,658	13,605	186,716	90,716	136,470 61	927,580 61
British Columbia	694,438	61,026	555,968	95,950	488,290	379,620	288,460	23,109 30	2,586,861 30
Manitoba	159,202	16,035	141,215	10,764	59,855	364,885	51,900	72,104 84	875,960 84
New Brunswick	8,600	500	26,540	509	4,210	2,300	5,425	2,109 83	50,193 83
Nova Scotia	16,887	3,644	62,890	63	9,605	7,603	40,145	956 09	141,853 09
Ontario	625,452	50,374	889,355	64,107	197,185	328,505	122,412	318,815 97	2,596,205 97
Prince Edward Island	4,500	750	1,450	.....	750	600	5,100	.....	13,150 00
Quebec	177,392	38,227	347,290	28,508	6,610	245,185	74,706	18,399 87	936,317 87
Saskatchewan	437,662	74,619	118,878	49,242	25,750	109,080	115,618	137,791 21	1,068,640 21
Total	2,394,171	296,373	2,267,765	303,801	805,920	1,624,494	794,482	709,757 72	9,196,763 72

SCHOOL STATEMENT

STATEMENT of Indian Day Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922

NOTE.—The "Standard" indicates the classification of the pupils according to the reading-book used and therefore shows the degree of general advancement in all the studies described by the curriculum, thus:—

Standard I ..... First Reader, Part I
Standard II ..... First Reader, Part II.
Standard III ..... Second Reader
Standard IV ..... Third Reader.
Standard V ..... Fourth Reader.
Standard VI ..... Fifth Reader.

School	Reserve	Agency	Teacher	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
NOVA SCOTIA														
Afton	Afton	Antigonish County	William J. Rogers	Roman Catholic	11	14	25	13	17	3	2	2	1	
[1]Heatherton	At Heatherton	" "	Miss Anna McKeough.	"	5	4	9	4	7	1	1			
[2]Eskasoni	Eskasoni	Cape Breton "	Miss Hattie A. Burke	"	17	16	33	13	29	2	1	1		
Sydney	Sydney	" "	Miss Catherine Gallagher	"	10	10	20	11	8	3	3	5	1	
Millbrook	Millbrook	Colchester "	Mrs. Elizabeth English	"	12	16	28	15	15	6	3	2	2	
Bear River	Bear River	Digby "	Miss Mary A. McGinty	"	10	9	19	10	9	3	3	1		3
[3]Shubenacadie	Indian Brook	Hants "	Miss Ruby D. Anthony	"	10	7	17	11	8	5	1		2	1
[2]Whycocomagh	Whycocomagh	Inverness "	Angus A. McDonald	"	18	22	40	14	24	7	10	5	1	
New Germany	Lunenburg	Lunenburg "	Mrs. Rose L. Ford	"	4	4	8	4	3	2	1		1	1
Indian Cove	Fisher's Cove	Pictou "	Miss Gertrude McGirr	"	12	6	18	9	11	2	2	2	1	
Salmon River	Salmon River	Richmond "	Miss Mary McDonald	"	11	17	28	9	21	4	2	1		
Middle River	Middle River	Victoria "	John A. Mucrae	"	12	12	24	11	11	6	5	1	1	
[1]Bishopville	At Bishopville	Kings "	Miss Sadie B. Wambott	"	2	2	4	2	1	1		2		
[1]Hectanooga	At Hectanooga	Yarmouth "	Miss Emma L. McCarthy	"	2	1	3	2	2	1				
Total, Nova Scotia					136	140	276	128	166	49	29	18	9	5
PRINCE EDWARD ISLAND														
Lennox Island	Lennox Island	P.E.I Superintendency	John J. Sark	Roman Catholic	13	16	29	14	12	7	3	5	2	
Rocky Point	Rocky Point	"	J. Henry Sepier	"	4	5	9	4	7		2			
Total, Prince Edward Island					17	21	38	18	19	7	5	5	2	
NEW BRUNSWICK														
Big Cove	Big Cove	Northeastern	Miss Martha Isaacs	Roman Catholic	19	11	30	15	15	8	4	3		
Burnt Church	Church Point	"	Miss Isabelle Driscoll	"	22	16	38	19	18	12	5	3		
Eel Ground	Eel Ground	"	Miss Rebecca Isaacs	"	21	18	39	24	16	11	6	5	1	
Eel River	Eel River	"	Miss Antoinette Blanchard	"	10	9	19	16	8	9	1		1	
Red Bank	Red Bank	"	Miss Delia M. Taylor	"	11	10	21	16	5	7	4	5		
Kingsclear	Kingsclear	Southwestern	Miss Bridget Crain	"	5	13	18	12	5	3	3	5	2	
Oromocto	Oromocto	"	Miss Kathleen Rowan	"	8	8	16	12	6	4	4	2		
St. Mary's	St. Mary's	"	Miss Mary T. Hughes	"	12	17	29	20	6	6	6	9	2	
Woodstock	Woodstock	"	Miss Miriam G. Dunphy	"	10	6	16	10	7	2	1	2	3	1

Edmundston	At Edmundston	Northern	Miss Emelie Bernier	"	6	3	9	6	1	3	1	3	1	
Tobique	Tobique	"	Miss Nellie T Dugan	"	22	21	43	27	15	6	13	8	1	
Total, New Brunswick					146	132	278	177	102	71	48	45	11	1
QUEBEC														
Caughnawaga Boys	Caughnawaga	Caughnawaga	Sr Mary Gabriel (super prin.)											
			Sr Mary Rita, 1st teacher											
			Sr. Mary Zita, 2nd teacher	Roman Catholic	216		216	182	45	93	41	18	11	8
			Sr Mary Ann Catherine, 3rd teacher											
			Sr. Mary Suzanne, 4th teacher											
			Sr. Mary Eveline, 5th teacher											
Caughnawaga Girls	"	"	Sr Mary Gabriel (super prin.)											
			Sr. Mary Arthemie, 1st teacher											
			Sr. Mary Claire, 2nd teacher	"		199	199	141	79	61	17	26	8	8
			Sr. Mary Clare Anna, 3rd teacher											
			Sr. Mary Veronica, 4th teacher											
Caughnawaga—Continuation	"	"	Sr. Mary Louise Ida	"	13	14	27	22						27
			Sr. Mary Resurrection											
Caughnawaga—Bush	"	"	Mrs. A. Beauvais	"	19	14	33	27	15	7	5	6		
Caughnawaga—St Isidore	"	"	Mrs. Lena Y Jacobs	"	18	20	38	21	20	8	8	2		
Bersimis	Bersimis	Bersimis	Sr. St. Raphael, prin	"	32	33	65	31	27	26	12			
			Sr. St. Eugene, asst											
Pointe Bleue	Pointe Bleue	Pointe Bleue	Sr. St. Vincent de Paul, prin	"	52	49	101	63	48	26	12	9	6	
			Sr. St. Marie du Carmel, asst											
Restigouche	Restigouche	Restigouche	Sr Mary of St. Joseph, prin	"	46	55	101	63	30	19	15	23	14	
			Sr. Mary of St. Ulric, asst											
St. Frances (C.E.)	Pierreville	Pierreville	Henry L. Mastn	Church of England	3	8	11	7	4	1	2	2	2	
			Sr. L. Woods, superior											
			Sr. Mary Josephine, 1st teacher											
St Frances (R.C)	"	"	Sr. Mary of Mercy, 2nd teacher	Roman Catholic	21	29	50	42	13	13	15	4	4	1
			Sr. Mary Donatus, 3rd teacher											
St Regis Island	St Regis	St. Regis	Miss Ethel Sloane	"	12	13	25	15	14		3	8		
St. Regis Village	"	"	Miss Gertie Legarde, prin	Undenominational	41	34	75	28	41	12	11	5	2	1
			Miss Dorothy Brown, jun											

[1]White school attended by Indian children.
[2]Closed during September quarter, 1921: no teacher.
[3]Re-opened January 1, 1922, having been closed since September 30, 1920.

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Day Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922—*Continued*

School	Reserve	Agency	Teacher	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
Chenail	St. Regis	St. Regis	Miss Margaret Kelly	Undenominational	22	16	38	21	18	11	4	5		
Chetlain	"	"	Miss Angeln Morris	"	17	5	22	13	11	5	3	3		
Cornwall Island	"	"	Miss Geneva Legarde	"	24	27	51	16	36	4	5	6		
Oka Country	Oka	Oka	Miss Frances Saunders	Methodist	14	18	32	9	14	9	4	1	3	1
Oka Village	"	"	Miss Helen Earl	"	5	13	18	10	12	3	1	1	1	
[3]Baskatong (white)	At Baskatong	Maniwaki	Miss M. A. Ethier	Undenominational	5	9	14	13	2	10	2			
Congo Bridge	Maniwaki	"	Miss Helen J. White	"	9	11	20	10	6	8	3	3		
Maniwaki	"	"	Miss Margaret McCaffrey	Roman Catholic	17	10	27	12	11	7	5	4		
Maria	Maria	Maria	Miss Dora Gideon	"	12	12	24	15	7	3	3	5	5	1
Lorette	Lorette	Lorette	Sr. St. Agnes of Jesus, prin.	"	45	39	84	64	51	18	12	3		
			Sr. St. Reine, asst.	"	6	13	19	11	5	7	2	2	2	1
Timiskaming	Temiskaming	Temiskaming	Miss Blanche Delorme	"	7	11	18	15	9	8	1			
[1]Brennan's Lake	At Brennan's Lake	"	Miss Mary Smuve	"	12	12	24	17	22	2				
[2]Long Point	At Long Point	Temiskaming	Mrs. J. D. McLaren	Roman Catholic	12	21	33	15	19	14				
Waswanapi	At Waswanapi	"	Harry Cartlidge	Church of England	6	14	20	13	5	2	6	1	6	
Hunters Point (Prot.)	At Hunter's Point	"	Miss Florence Hanson	Undenominational	13	8	21	11	21					
Hunters Point (R.C.)	"	"	Miss Catherine Honan	Roman Catholic	5	11	16	9	9	1	3	1	2	
[3]Wolf Lake	At Wolf Lake	"	Miss Agnes Robinson	"	34	25	59	12	59					
Rupert's House	At Rupert's House	James Bay	Rev. C. Garrett	Church of England	23	35	58	28	58					
[3]Mistussini	At Lake Mistassini	"	Charles Iserhoff	"										
Total Quebec					761	778	1,539	956	714	378	195	138	66	48
ONTARIO														
Alnwick	Alnwick	Alnwick	Rev. Fred. J. Dodson	Methodist	28	19	47	33	10	9	18	6	4	
Cape Croker	Cape Croker	Cape Croker	Miss Mary Moffitt	Undenominational	18	14	32	22	12	5	10	3	2	
Port Elgin	"	"	Miss May Timmerman	"	8	10	18	5	13		3	2		
Sidney Bay	"	"	Miss Isabella McIvor	"	4	6	10	6	2	3		4	1	
Bear Creek	Caradoc	Caradoc	Miss Lillibelle Graham	"	7	16	23	11	9	8	2	1	3	
Back Settlement	"	"	Lyman W. Fisher	"	6	13	19	9	7	3	7	2		
Muncey	"	"	Miss Mary McArthur	Church of England	15	14	29	12	9	5	8	7		
River Settlement	"	"	Miss Merla Faulds	Undenominational	18	12	30	13	13	6	6	5		
Oneida No. 2	Oneida	"	Levi Doxtador	Church of England	31	23	54	26	31	6	12	4	1	
Oneida No. 3	"	"	Miss Tena M. Brodie	Methodist	26	24	50	16	34	7	8		1	
Manitou Rapids	Manitou Rapids	Fort Frances	Mrs. A. Spencer	Church of England	9	8	17	3	3	10	4			
Sand Point	At Sand Point	Fort William	Mrs. A. McLaren	Roman Catholic	15	13	28	12	21	6	1			
Lake Helen	Red Rock	"	D. Ducharme	"	10	15	25	10	10	8	3	4		
Mountain Village	Fort William	"	S. A. Prudhomme	"	13	7	20	11	9	8	1	2		
Georgina Island	Georgina Island	Georgina Island	Miss Grace Martin	Methodist	15	9	24	17	10	4	4	4	2	
[3]Cuhahogie, S.S. No. 5	At Cuhahogie	Golden Lake	Miss Katherine Windle	Roman Catholic	1		1	1	1					
Golden Lake	Golden Lake	"	Miss Josephine Currier	"	15	13	28	14	16	2	4	5	1	
Sheshegwaning	Sheshegwaning	Gore Bay	Miss Sadie J. Burke	"	7	14	21	16	9	4	6	2		

Sheshegwaning	"	"	Edwin Weeks	Church of England	8	9	17	11	4	2	4	1	4	2
West Bay	West Bay	"	Miss Elizabeth Leusch	Roman Catholic	25	24	49	25	24	7	6	6	6	....
Buzwah	Buzwah	Manitowaning	"	"	11	11	22	12	14	8				
Kaboni	Kaboni	"	Mrs. Charles King	"	11	20	31	19	20	6	1	4		
Sheguiandah	Sheguiandah	"	G. H. L. Watts	Church of England	4	10	14	9	7	4	3			
Little Current	At Little Current	"	V. B. Corbett	Roman Catholic	2	2	4	2	2	2				
South Bay	South Bay	"	Miss Priscilla Lavallee	"	9	16	25	15	18	2	3	2		
Sucker Creek	Sucker Creek	"	J. Carl Richards	Church of England	6	10	16	9	3		8	4	1	
Whitefish Lake	M.I.Reserve	"	Mrs. Annie Ladouceur	Roman Catholic	16	14	30	15	27	2	1			
Wikwemikong	Manitoulin Island	"	Miss Joe St. James, prin	"	53	60	113	72	63	15	15	16	4	
			Miss Isabelle Peltier, asst											
Moravian town	Moravian	Moravian	F. J. Joblin	Undenominational	28	22	50	30	24	10	12		4	
New Credit	New Credit	New Credit	Miss Mary E. Lewis	"	20	18	38	16	17	7	3	10	1	
[1]Dokis	Dokis	Nipissing	Miss Annie Mongeau	Roman Catholic	16	17	33	28	33					
Garden Village	Nipissing	Nipissing	Miss Clotilda Fitzpatrick	Roman Catholic	20	16	36	20	28	6	2			
[2]Mattawa	At Mattawa	"	Sister Anna Rita	"	28	33	61	55	27	5	13	7	7	2
[2]Temogami	On Bear Island	"	Miss Catherine Honan	Undenominational	15	17	32	16	15	9	3	5		
Gibson	Watha	Parry Sound	Miss Mary A. Black	Methodist	19	14	33	11	33					
[4]Gibson (sub-school)	Gibson	"	Miss Mary Strength	"	4	9	13	8	11	2				
Henvey Inlet	Henvey Inlet	"	S. K. Ritchie	Undenominational	5	7	12	8	9	3				
Ryerson	Parry Island	"	Miss Edythe J. McLarnon	"	26	17	43	17	29	7	3	4		
Shawanaga	Shawanaga	"	Mrs. Elizabeth English	"	14	21	35	18	11	5	9	8	2	
Christian Island	Christian Island	Christian Island	Thomas Jones	Methodist	17	14	31	20	14	6	9	1	1	
Moose Deer Point	At Moose Deer Pt	"	Bert. Sullivan	Undenominational	11	6	17	11	5	3	3	4	2	
Rama	Rama	Rama	Miss Wanda Bowman, prin	Methodist	24	14	38	20	19		2	8	5	4
			Mrs. Ida Carman, asst											
[1]Hiawatha	Rice Lake	Rice Lake	H. F. Maloney	Undenominational	5	13	18	15	5	6	5	2		
Mud Lake (Chemong)	Mud Lake	"	Miss Ethel A. Browne	"	28	23	51	34	39	8	4			
Kettle Point	Kettle Point	Sarnia	Mrs. A. George	"	17	12	29	14	16	7	5	1		
St. Clair	Sarnia	"	Miss Alice M. Matthews	Methodist	24	25	49	24	27	5	4	3		
Stony Point	Stony Point	"	Miss Agnes A. Weaver	Undenominational	8	4	12	5	4	3	3	1	1	
French Bay	Saugeen	Saugeen	T. W. Wallace	"	13	7	20	13	14		4		2	
Saugeen	"	"	Miss Isabella Ruxton	"	13	16	29	20	15	7	2	5		
Scotch Settlement	"	"	Mrs. B. Robb	"	11	15	26	16	10	4	5	4	3	
Garden River	Garden River	Garden River	Miss Mildred Toner, prin	Roman Catholic	32	34	66	35	11	11	25	11	8	
			Miss Malvina Cahill, asst											
Garden River	"	"	F. W. R. Belford	Church of England	15	7	22	13	8	5	2	5	2	
Goulais Bay	Goulais Bay	"	Miss Lucy Teniscoe	Roman Catholic	11	3	14	8	11	1	1	1		
Six Nations No. 1	Six Nations	Six Nations	Miss Mary H. Jamieson	Undenominational	24	21	45	28	10	6	6	14	9	
" No. 2	"	"	Miss N. M. Alexander, prin	"	44	54	98	61	23	11	18	36	10	
			Miss Ethel Alexander, asst											
" No. 3	"	"	Miss Nora E. Jamieson	"	45	25	70	45	27	11	9	10	13	
" No. 4	"	"	Miss Julia L. Jamieson	"	18	14	32	18	8	11	6	6	1	
" No. 5	"	"	Miss Edith L. King	"	20	14	34	19	15	....	7	7	5	
" No. 6	"	"	Miss Nettie Green	"	17	10	27	14	12	2	4	9	....	
" No. 7	"	"	Norman R. Smith	"	34	29	63	33	19	7	22	7	8	
" No. 8	"	"	Miss Wilma G. Smith	"	21	25	46	30	10	6	13	8	9	

[1]New school, opened October 17, 1921.
[2]White school attended by Indian children.
[3]Summer school only.
[4]Opened in connection with Gibson School, during winter months only.

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Day Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922—*Continued*

School	Reserve	Agency	Teacher	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
Six Nations No. 9	Six Nations	Six Nations	G. M. Grant Smith	Undenominational	27	17	44	23	20	11	3	8	1	1
" No. 10	"	"	S. A. Anderson	"	22	31	53	31	16	10	18	2	7	
" No. 11	"	"	Winton Loft	"	51	29	80	41	44	8	3	9	16	
[4]Sagamook	Spanish River	Thessalon	Miss Rose Chaput	Roman Catholic	15	8	23	13	23					
[5]Spanish	"	"	Rev. R. M. Fairbairn	Church of England	6	5	11	9	10		1			
Serpent River	Serpent River	"	Miss Eva McAndrew	Roman Catholic	16	18	34	19	18	4	12			
[1]Abitibi	At Abitibi	Treaty No. 9	Miss Alice McBride	"	15	19	34	16	31	3				
English River	At English River	"	Rev. P. A. Northam	Church of England	25	26	51	28	22	11	15	3		
Albany River	At Fort Albany	"	Miss Emily Wesley	"	27	23	50	28	40	5	4	1		
Fort Hope	At Fort Hope	"	Rev. F. McReynolds	"	25	11	36	14	30			6		
[1]Martins Falls	At Martins Falls	Treaty No. 9	Rev. A. E. O. Anderson	Church of England	12	12	24	10	24					
Moose River (French Post)	At Moose River	"	Fred. Marks	"	14	7	21	9	21					
Moose Fort	At Moose Fort	"	Miss Alice Reynolds	"	23	27	46	25	34	7	1	4		
Tyendinaga (Eastern)	Tyendinaga	Tyendinaga	Miss Nora H. Stoddart	Undenominational	27	20	47	29	23	6	9	8	1	
" (Western)	"	"	W. Frank Watson	"	11	15	26	11	15		7	4		
" (Central)	"	"	Walter G. Neneilly	"	20	11	31	21	12	5	4	3	7	
" (Mission)	"	"	Miss Beatrice Loft	"	20	7	27	18	10	6	9	1	1	
Walpole Island, No. 1	Walpole Island	Walpole Island	Mrs. H. Macpherson, prin. Miss Evelyn Fortner, asst.	Church of England	29	25	54	28	33	14	6	1		
Walpole Island, No. 2	"	"	Harold D. Watts	Methodist	26	22	48	22	23	12	10	2	1	
Total, Ontario					1,449	1,211	2,660	1,539	1,319	418	444	313	157	9
MANITOBA														
Black River	Black River	Clandeboye	George Slater	Church of England	8	8	16	7	10	2	2	2		
Broken head	Brokenhead	"	Rev. Geo. C. Smith	"	10	8	18	8	14	3	1			
Fort Alexander Upper	Fort Alexander	"	Rev. C. H. Fryer	"	17	12	29	12	18	4	5	1	1	
[3]Patapun Public	St. Peters	"	Rev. Alfred Cook	Undenominational	3	2	5	3				4	1	
St. Peters North	St. Peters	"	Peter Harper	Church of England	8	12	20	8	12	6	1	1		
Poplar River	Poplar River	"	W. J. Hope	Methodist	17	9	26	7	21	2	3			
Bloodvein	Bloodvein	"	Joseph Inglott	Roman Catholic	13	15	28	13	18	8	2			
Grand Rapids	Grand Rapids	"	Mrs. Katherine Butcher	Church of England	11	7	18	12	8	6	4			
Berens River (Prot.)	Berens River	"	A. Willie Lindsey	Methodist	20	8	28	16	6	9	9	1	3	
Berens River (R.C.)	"	"	Miss M. A. Langlais	Roman Catholic	12	11	23	12	13	3		7		
Fisher River	Fisher River	Fisher River	W. G. Tong, prin. Mrs. W. G. Tong, asst.	Methodist	43	51	94	58	49	18	14	9	4	
Peguis Centre	Peguis	"	Miss W. H. Stapleton	Church of England	13	12	25	11	16	2	5	2		
Peguis North	"	"	Nathaniel Asham	"	10	9	19	7	9	2	3	5		
Peguis South	"	"	A. H. Pocker	"	27	10	37	11	17	12	6		2	
Oak River Sioux	Oak River	Griswold	Rev. J. H. Hill	"	10	3	13	3	8		2	3		
Ebb and Flow Lake	Ebb and Flow Lake	Manitowapah	Miss Laura J. Davis	Roman Catholic	9	10	19	5	16	2	1			
[4]Crane River (combined)	At Crane River	"	J. W. Mallinson	Undenominational	5	6	11	3	11					

Fairford Improved	Fairford	"	Augustus Hyson	Church of England	14	11	25	14	13	5	4	3		
Lake Manitoba	Lake Manitoba	"	R. A. Martel	Roman Catholic	16	7	17	10	2	6	9			
Lake St. Martin	Lake St. Martin	"	Jno. E. Favelle	Church of England	20	23	43	25	27	10	3	2		
Little Saskatchewan	Little Saskatchewan	"	Frank Villiers	"	21	11	32	8	23	5	4			
[1]Pine Creek	Pine Creek	"	Rev. J. Brachet, O.M.I.	Roman Catholic	6	6	12	10	8	2	1	1		
Shoal River	Shoal River	"	Rev. A. J. Warwick	Church of England	13	19	32	12	18	8	6			
York Factory	At York Factory	Norway House	John F. Lazenby	"	30	14	44	18	22	17	4			
Oxford House	At Oxford House	"	Miss Edith Atkinson	Methodist	17	28	45	19	26	8	1			
Cross Lake	Cross Lake	"	Miss Isabel Stauffer	"	22	18	40	12	30	8	2			
Jack River	Norway House	"	Miss Letitia Wood	Church of England	17	28	45	18	20	11	7	7		
Nelson House	At Nelson House	"	Miss Etta E. Winter	Methodist	16	8	24	14	22	2				
Rossville	Norway House	"	Miss Mildred J. Campbell	"	14	16	30	13	25	2	3			
Big Eddy	Pas	Pas	Miss Mary Jane Cook	Church of England	17	13	30	16	21	8	1			
Shoal Lake	"	"	Francis J. Daniels	"	11	10	21	10	14	5	1	1		
Split Lake	Split Lake	"	Rev. W. H. J. Walter	"	27	27	54	18	40	14				
Chemawawin	Chemawawin	"	J. G. Kennedy	"	8	10	18	8	12	6				
[2]Moose Lake (combined)	Moose Lake	"	Miss Dorothea R. Winn	"	14	10	24	11	22		2			
Red Earth	Red Earth	"	Isaiah Badger	"	19	13	32	17	24	5	2	1		
Lower Rossau River	Rossau River	Portage la Prairie	Miss Emma Godon	Roman Catholic	6	6	12	2	8	4				
Swan Lake	Swan Lake	"	Rev. Jas. A. Donaghy	Presbyterian	9	7	16	9	11	5				
Total, Manitoba					547	477	1,024	462	645	210	108	50	11	
SASKATCHEWAN														
Assiniboine	Assiniboine	Assiniboine	Miss Clara Glover	Undenominational	15	18	33	9	18	8	3	4		
Poundmaker	Battleford	"	J. M. Seeber	Roman Catholic	9	3	12	1	8	2	2			
Red Pheasant	Red Pheasant	"	E. V. Bird	Church of England	17	12	29	17	23	4	2			
Ahtahkakoops	Ahtahkakoops	Carlton	H. Hutchinson	"	17	13	30	14	10	6	10	3	1	
Mistawasis	Mistawasis	"	Mrs. Kate LeClair	"	9	11	20	9	16	2	1	1		
Montreal Lake	Montreal Lake	"	John R. Settee	"	5	20	25	14	11	8	2	4		
Sturgeon Lake	William Twatts	"	Henry W. Shaw	"	9	11	20	9	12	3	1	4		
James Smith	James Smith	Duck Lake	Rev. Canon McLennan	"	16	12	28	13	18	5	5			
John Smith	John Smith	"	J. L. Lowe	"	13	10	23	12	9	5	8	1		
White Bear's	White Bear's	Moose Mountain	Rev. G. A. Huckney	Presbyterian	14	9	23	9	10	7	5	1		
White Cap Sioux	Moose Woods	Moose Woods	Charles Hawk	Methodist	8	10	18	9	13		5			
Cold Lake	Cold Lake	Onion Lake	J. H. Lirette, prin. / Mrs. J. H. Lirette, asst	Roman Catholic	17	9	26	17	14	8	4			
Frog Lake	Frog Lake	"	Charles Quinney	Church of England	14	9	23	6	15	4	1	3		
Long Lake	Keehewins	"	J. Y. Dion, prin. / Mrs. J. Y. Dion, asst.	Roman Catholic	13	13	26	12	23	2	1			
Cote's Improved	Cote	Pelly	Mrs. S. Marshall	Presbyterian	20	14	34	19	14	4	5	4	5	2
Keys	Keys	"	Frank Bowley	Church of England	5	4	9	6	6			3		
Keeseekouse	Keeseekouse	"	W. E. Monaghan	Roman Catholic	12	4	16	10	13	3				
Day Star's	Day Star's	Touchwood Hills	George Turner	Church of England	8	6	14	12	11		2	1		
Fishing Lake	Fishing Lake	"	Rev. A. J. Lawes	"	11	7	18	12	10	8				
Stanley	Amos Charles	Treaty No. 10	Mrs. Mabel Morris	"	4	21	25	8	23	2				
Total, Saskatchewan					236	216	452	218	277	81	57	29	6	2

[1]Re-opened on September 1, 1921.
[1]Open summer months only.
[2]White school attended by Indian children.

[2]Opened January 1, 1922. Conducted three days each week.
[2]Combined Indian and white school.
[4]Children attend classes in Pine Creek Bdg.

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Day Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922—*Concluded*

School	Reserve	Agency	Teacher	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
ALBERTA														
Pauls	White Whale Lake	Edmonton	Fred. J. Dodson	Methodist	7	12	17	1	17	....	....	....	....	....
[2]Louis Bull	Louis Bull	Hobbema	Rev. W. E. Elliott	"	13	9	22	14	22	....	....	....	....	....
Samson's	Samson's	"	Miss Edith Taylor	"	15	23	38	13	21	11	6	....	....	....
Goodfish Lake	Pakan	Saddle Lake	J. M. Murray	"	17	23	40	14	30	4	3	3	....	....
Saddle Lake	Saddle Lake	"	H. W. J. Steinhauer	"	18	9	27	14	20	....	6	1	....	....
[2]Sarcee	Sarcee	Sarcee	Miss Winnifred Tims	Church of England	12	10	22	16	10	....	8	1	3	....
Total, Alberta					86	86	166	72	120	15	23	5	3	....
BRITISH COLUMBIA														
Fort Babine	Fort Babine	Babine	Jos. F. Morrissey	Roman Catholic	22	26	48	16	14	17	10	4	3	....
Kitwanga	Kitwanga	"	Samuel Kinley	Church of England	21	18	39	10	25	6	3	2	3	....
Glen Vowell	Sicedluck	"	Miss Florence Goddard	Salvation Army	13	12	25	13	15	4	6	....	....	....
Hazelton	Gitanmaksh	"	Mrs. H. C. Roberts	Church of England	14	26	34	13	11	13	2	5	3	....
Kitsegukla	Kitsegukla	"	E. Albert Orchard	Methodist	12	15	27	7	9	10	5	3	....	....
Kispiox	Kispiox	"	Miss Lulu M. Drysdale	"	18	23	41	15	20	6	5	6	3	1
Roche Deboule	At Roche Deboule	"	Sydney Browning	Roman Catholic	14	15	29	17	14	5	4	3	3	....
Meanskinisht	At Meanskinisht	"	Mrs. Helen Lewis	Methodist	2	5	7	5	2	5	....	....	....	....
Bella Bella	Bella Bella	Bella Coola	James Oliver	"	24	19	43	14	37	4	1	1	....	....
Bella Coola	Bella Coola	"	Miss Margaret Fougner	"	18	16	34	7	15	11	7	1	....	....
China Hat	"	"	Mrs. S. Preston	"	15	12	27	23	16	6	5	....	....	....
Kitamat	Kitamat	"	Miss Ruth Nelson	"	32	9	41	16	31	4	3	2	1	....
Koksilah	Koksilah	Cowichan	Miss Jaret H. Gibson	"	12	13	25	9	17	1	3	3	1	....
Nanaimo	Nanaimo	"	Miss Edith Jessup	"	25	17	42	23	23	....	6	9	4	....
Songhees	Songhees	"	Miss Florence Geoghegan	Roman Catholic	5	8	13	6	5	4	4	....	....	....
Alert Bay	Nimkish	Kwawkewlth	George M. Luther	Church of England	15	9	24	16	9	9	1	4	1	....
Cape Mudge	Cape Mudge	"	Mrs. Florence Howard	Methodist	8	9	17	10	8	5	3	1	....	....
Boothroyd	Boothroyd	Lytton	Miss Lilly Bluehford	Church of England	11	10	21	14	5	7	5	3	1	....
Shulus	Nicola Mameet	Kamloops	A. E. Fyall	"	9	7	16	8	11	5	....	....	....	....
[1]Gitladamicks	Gitladamicks	Nass	Miss Gertrude M. Thorne	"	23	20	43	27	18	18	3	4	....	....
Gwinola	Gwinola	"	P. A. Mercer	"	13	4	17	16	8	4	5	....	....	....
Kincolith	Kincolith	"	Miss Alice M. Collison	"	19	18	37	22	18	9	8	2	....	....
Lakalsap	Lakalsap	"	Miss Alice E. Hanaunn	"	26	17	43	29	5	12	12	13	1	....
Chehalis	Chehalis	New Westminster	J. J. Muroney	Roman Catholic	14	13	27	21	8	4	3	4	8	....
Katzie	Katzie	"	Miss Helen Coughlan	"	9	6	15	9	10	....	1	3	1	....
Homalco	Aupe	"	William Manden	"	16	11	27	10	10	8	4	5	....	....
Skwah	Skwah	"	Walter H. Grimshaw	Undenominational	14	8	22	14	11	4	7	....	....	....
Shiammon	Shiammon	"	Basil Nicholson	Roman Catholic	7	15	22	8	10	3	8	1	....	....

[4]Larkin (Public)	At Armstrong	Okanagan	Miss Dorothy Dunwoodie	Undenominational	3	3	6	5		2	4			
Osoyoos	Osoyoos	"	Miss Gertrude Hozier	"	4	4	8	5	2		1	3	2	
[4]Westbank (Public)	At Westbank	"	Miss Vida Lloyd	"	6	7	13	8	1	3	9			
Massett	Massett	Queen Charlotte	Alfred Adams, Peter Hill	Church of England	50	32	82	37	38	20	18	5	1	
Skidegate	Skidegate	"	Miss Blanche E. Ward	Methodist	23	28	51	26	22	9	5	8	3	4
Telegraph Creek	At Telegraph Creek	Stikine	T. A. McGarrigle	Undenominational	8	10	18	4	7	1	8	2		
Hartley Bay	Hartley Bay	Skeena	Rev. J. H. Matthews	Methodist	17	11	28	14	14	4	5	5		
Kitkatla	Kitkatla	"	George Coffin	Church of England	31	29	60	30	25	16	10	7	2	
Metlakatla	Metlakatla	"	Miss Evelyn Klippert	"	20	20	40	22	10	8	10	9	3	
Port Essington	Skeena	"	Miss Funny J. Noble	Methodist	16	14	30	16	12	4	5	5	4	
Port Simpson	At Port Simpson	"	Miss Kate Trantor, prin. Miss M. B. Wright, asst.	"	46	50	96	31	36	6	12	30	9	3
Kitselas	Kitselas	"	Chas. M. McKinnon	"	6	15	21	9	12	6	1	2		
[5]Nitinat	Clo-oose	West Coast	Rev. J. Edward Rendle	"	6	8	14	10	10	4				
Ucluelet	Itedise	"	Miss Gertrude Lawrence	Presbyterian	14	15	29	12	19	4	6			
Total, British Columbia					681	621	1,302	630	594	273	214	154	59	8
NORTHWEST TERRITORIES														
Fort Smith	At Fort Smith	Fort Smith	Sister Gadbois	Roman Catholic	8	4	12	6	7	1	3	1		
[6]St. David's Mission	At Fort Simpson	Fort Simpson	Rev. W. A. Blow	Church of England	1		1	1	1					
Fort Simpson	"	"	Sister Fermin	Roman Catholic	6	6	11	8	7	3		1		
Fort McPherson	McKenzie River District		Rev. J. M. Crisall	Church of England	4	10	14	7	11	2	1			
Total, Northwest Territories					18	20	38	22	26	6	4	2		
YUKON														
[6]Old Crow Village	Old Crow Village	Yukon	Mardo Baalim	Church of England	11	11	22	14	8	14				
Moosehide	At Moosehide	"	Rev. Benjamin Totty	"	13	15	28	11	19	9				
Selkirk	At Selkirk	"	Miss Kathleen Martin	"	8	14	22	5	22					
Total, Yukon					32	40	72	30	49	23				

[2]Re-opened January 25, 1922.

[4]Formerly a boarding school. Classified as a day school from October 1, 1921.
[6]White school attended by Indian children.

[1]Returns received for December quarter, 1921, only.
[3]Returns received for June quarter, 1921, only.
[5]Returns received for December, 1921, and March, 1922, quarters.

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Boarding Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922—*Continued*

School	Reserve	Agency	Principal	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
ONTARIO														
Chapleau	At Chapleau	Chapleau	Rev. George Prewer	Church of England	55	43	98	87	65	21	10	2	..	
Fort Frances	At Fort Frances	Fort Frances	Rev. H. M. Brassard, O.M.I	Roman Catholic	36	44	80	73	15	16	23	7	11	8
Cecelia Jeffrey	Shoal Lake	Kenora	Rev. W. J. Cookson	Presbyterian	32	39	71	60	27	18	6	6	8	6
Kenora	At Kenora	"	Rev. J. de Grandpere, O.M.I	Roman Catholic	43	37	80	66	40	9	7	8	16	
Fort William Orphanage	At Fort William	Fort William	Sister M. F. Clare	"	18	14	32	24	27	2	....	3	..	
Albany Mission	At Fort Albany	Treaty No. 9	Rev. L. Ph. Martel, O.M.I	"	13	18	31	30	4	6	10	11	..	
Moose Fort	At Moose Fort	"	Rev. John T. Griffin	Church of England	16	14	30	21	19	6	2	3		
Total, Ontario					213	209	422	361	127	78	58	40	35	14
MANITOBA														
Birtle	At Birtle	Birtle	Rev. F. E. Pitts	Presbyterian	33	42	75	62	27	9	9	14	9	7
Fort Alexander	Fort Alexander	Clandeboye	Rev. P. Bousquet, O.M.I	Roman Catholic	25	43	68	65	24	12	8	9	6	9
Pine Creek	Pine Creek	Manitowapah	Rev. J. Brachet, O.M.I	"	26	46	72	67	34	9	13	5	11	
Sandy Bay	Sandy Bay	"	Rev. O. Chagnon, O.M.I	"	33	30	63	58	29	9	11	11	3	
Cross Lake	Cross Lake	Norway House	Rev. H. Boissin, O.M.I	"	47	47	94	87	28	8	12	20	11	15
Norway House	Norway House	"	Rev. Jas. J. Blackford	Methodist	41	53	94	90	32	16	5	13	15	13
Portage la Prairie	Portage la Prairie	Portage la Prairie	Rev. W. A. Hendry	Presbyterian	40	54	94	89	4	14	47	17	12	1
Mackay	At Pas	Pas	Rev. Arthur E. Minchin	Church of England	42	46	88	80	42	16	9	16	4	7
Total, Manitoba					287	361	648	598	220	86	114	105	71	52
SASKATCHEWAN														
Thunderchild	Adjoining Thunderchild's	Battleford	Rev. A. Watelle, O.M.I	Roman Catholic	41	22	63	56	35	9	9	10		
Beauval	At Lac la Plonge	Carlton	Rev. Martin Lajeunesse, O.M.I	"	26	39	65	62	18	15	19	11	2	
Lac la Plonge	At Lac la Plonge	"	Rev. Chas. F. Hives	Church of England	34	50	84	31	47	9	16	12		1
Cowessess	Cowessess	Crooked Lakes	Rev. J. Carrier, O.M.I	Roman Catholic	35	37	72	63	25	18	9	11	3	6
Round Lake	North side of Round Lake	"	Rev. Jas. Green	Presbyterian	30	36	66	53	10	13	10	1	2	
Duck Lake	Near Duck Lake	Duck Lake	Rev. H. Delmas, O.M.I	Roman Catholic	57	54	111	106	39	11	14	17	19	11

File Hills	Adjoining File Hills	File Hills	F. Rhodes	Presbyterian	25	41	66	61	22	7	13	9	2	13
Onion Lake (R.C.)	Seekaskootch	Onion Lake	Rev. J. A. Therien	Roman Catholic	30	25	55	50	26	18	8	3		
Onion Lake (C.E.)	Makaoos	"	Henry Ellis	Church of England	26	15	41	37	13	5	7	7	2	
Gordons	George Gordon	Touchwood Hills	Rev. H. W. Atwater	"	24	26	50	45	12	4	9	11	8	6
Muscowequan's	Adjoining Muscowequan's	"	Rev. J. E. Baillargeon, O.M.I.	Roman Catholic	34	34	68	60	10	14	19	20		5
Total, Saskatchewan					362	379	741	624	287	123	133	112	45	41
ALBERTA														
Blood (C.E.)	Blood	Blood	Rev. S. Middleton	Church of England	36	42	78	65	36	18	17	7		
Blood (R.C.)	"	"	Rev. E. Ruaux, O.M.I.	Roman Catholic	38	31	69	60	34	6	20	7	2	
Crowfoot	Blackfoot	Blackfoot	Rev. J. Riou, O.M.I.	"	36	35	71	64	35	12	11	3	10	
Old Sun's	"	"	P. H. Gentleman	Church of England	30	27	55	52	36	13	6			
St. Albert	At St. Albert	Edmonton	Sister Gosselin	Roman Catholic	57	36	91	84	11	15	26	25	5	9
Holy Angels	At Fort Chipewyan	Treaty No. 8	Sister M. E. Dufault	"	14	25	39	33	14	11	5	2	7	
Ermineskins	Ermineskins	Hobbema	Rev. P. P. Moulin	"	31	41	72	61	33	20		10	8	1
Peigan (C.E.)	Peigan	Peigan	G. A. Roe (Acting)	Church of England	17	16	33	32	10	11	4	6	1	1
Peigan (R.C.)	"	"	Rev. J. L. Levern, O.M.I.	Roman Catholic	20	15	35	32	24	4	4	3		
Blue Quills	Blue Quills	Saddle Lake	Rev. R. L. Dauphin, O.M.I.	"	16	20	45	45	22	6	9	8		
Lesser Slave Lake	Lesser Slave Lake	Lesser Slave Lake	Rev. M. J. C. Levason	Church of England	3	6	9	7	2	2		2	1	2
St. Bernards	"	"	Rev. J. Cahais, O.M.I.	Roman Catholic	16	23	39	31	26	6	8	5		
St. Bruno	"	"	Rev. C. Falker, O.M.I.	"	38	48	86	82	16	25	26	17	2	
Sturgeon Lake	At Sturgeon Lake	"	Rev. R. Hautin	"	18	25	43	40	11	16	8	3	3	
Vermilion	At Fort Vermilion	"	Rev. Jos. Hubey, O.M.I.	"	11	13	24	21	10	2	6	3		
Wabiskaw (C.E.)	At St. John's Mission, Wabiskaw Lake	"	Archd'n. Alfred S. White	Church of England	8	9	17	11	8	4	3	2		
Wabiskaw (R.C.)	At St. Martin's Mission, Wabiskaw Lake	"	Rev. C. Batie	Roman Catholic	13	16	29	21	17	5	4	3		
Whitefish Lake (St. Andrews Mission)	At Whitefish Lake	"	Rev. C. D. White	Church of England	6	7	13	9	4	5	2	2		
Total, Alberta					407	441	848	750	343	181	159	108	41	13
NORTHWEST TERRITORIES														
Fort Resolution	At Fort Resolution	Fort Smith	Sister A. McGuillan	Roman Catholic	11	42	53	45	12	14	7	15	5	
Hay River	At St. Peter's Mission	"	Rev. A. J. Vale	Church of England	27	25	52	46	9	11	11	21		
Providence Mission	At Fort Providence	Fort Simpson	Sister St. Rose of Lima	Roman Catholic	24	34	58	49	30	11	7	9	1	
Total, N.W.T.					62	101	163	140	51	36	25	45	6	
BRITISH COLUMBIA														
Kitamaat	Kitamaat	Bella Coola	Miss Ida M. Clarke	Methodist	4	26	30	26	13	5	5	6	1	
Alert Bay Girls Home	Alert Bay	Knawkwelth	Vivian Spencer Lord	Church of England		36	36	32	12	9	5	3	4	3
Seechelt	Seechelt	New Westminster	Sister Gabriel	Roman Catholic	25	31	56	54	9	8	20	14	5	
Squamish	At Squamish	"	Sister Mary Amy	"	29	24	53	53	6	6	10	19	6	6

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Boarding Schools in the Dominion (from which returns have been received) for the Fiscal Year ended March 31, 1922—*Concluded*

School	Reserve	Agency	Principal	Denomination	Number on Roll			Average Attendance	Standard					
					Boys	Girls	Total		I	II	III	IV	V	VI
St. Mary's Mission	At St. Mary's Mission	"	Rev. John Duplanil, O.M.I	"	47	52	99	86	27	19	30	5	9	
Alberni	Tresaht	West Coast	Rev. H. B Currie	Presbyterian	40	34	74	53	35	13	7	5	10	4
Ahousaht	Ahousaht	"	Rev. J. C. Millar, B.A	"	18	10	28	27	3	5	4	6	4	6
Total, British Columbia					163	213	376	331	105	65	90	58	39	19
YUKON														
Lareross	At Lareross	Yukon	Rev. W. Barlow	Church of England	17	19	36	34	23	4	4	4	1	

SCHOOL STATEMENT—*Continued*

STATEMENT of Indian Industrial Schools in the Dominion for the Fiscal Year ended March 31. 1922

School	Situation	Principal	Denomination	Number on Roll			Average Attendance	Standard					
				Boys	Girls	Total		I	II	III	IV	V	VI
ONTARIO													
Mohawk Industrial	At Brantford	Mrs. A. M. Boyce	Undenominational	53	74	127	115	7	23	26	24	16	31
Mount Elgin Institute	At Muncey	Rev. S. R. McVitty	Methodist	60	75	135	125	20	26	38	31	18	..
Shingwauk Home	At Sault Ste. Marie	Rev. B. P. Fuller	Church of England	38	35	73	59	23	17	16	4	8	5
Spanish	At Spanish	Rev. V. Gravel, S. J	Roman Catholic	120	88	208	185	101	36	36	20	10	5
Total, Ontario				271	272	543	484	151	102	116	79	54	41
MANITOBA													
Brandon	At Brandon	Rev. T. Ferrier	Methodist	71	61	132	118	33	33	17	15	17	17
SASKATCHEWAN													
Qu'Appelle	At Lebret	Rev. G. Leonard	Roman Catholic	116	135	251	197	92	50	37	33	17	22
ALBERTA													
St. Joseph	At Davisburg	Rev. J. A. Demers, O.M.I	Roman Catholic	33	12	45	38	5	11	11	10	8	
BRITISH COLUMBIA													
Alert Bay	At Alert Bay, Kwawkewlth Agency	J. Vivian S. Lord	Church of England	40	..	40	35	11	3	13	5	5	3
Christie	On Clayoquot Sound, West Coast of Vancouver Island	Rev. Chas. Moser, O.S.B	Roman Catholic	30	34	64	57	15	12	23	10	..	4
Coqualeetza	3 miles from Chilliwack, New Westminster Agency	Rev. Geo. H. Raley	Methodist	79	72	151	127	52	25	41	11	20	2
Kamloops	At Kamloops in the Kamloops Agency	Rev. James McGuire, O.M.I	Roman Catholic	35	33	68	66	13	27	11	14	2	1
Kootenay	At St. Eugene, 5 miles from Cranbrook, Kootenay Agency	Sister St. Justinian	"	35	45	80	80	13	15	17	14	11	10
Kuper Island	On Kuper Island, Cowichan Agency	Rev. Jos. Geurts	"	52	52	104	86	14	33	27	17	5	8
Lytton	2½ miles from Lytton Agency	Rev. A. R. Lett	Church of England	56	49	105	87	12	21	19	36	17	..
Cariboo	At Williams Lake, 4 miles from Sugar Cane Reserve, Williams Lake Agency	Rev. L. Choinel, O.M.I	Roman Catholic	36	41	77	69	35	15	13	9	5	..
[1]Fraser Lake	Se-as-bun-kut No. 4 Reserve, Stuart Lake Agency	Rev. J. Allard, O.M.I	"	69	69	138	78	104	23	11	..	..	..
Total, British Columbia				432	395	827	685	269	174	175	116	65	28

[1] Replaces Stuart Lake Boarding School.

SCHOOL STATEMENT—*Concluded*

STATEMENT showing the enrolment, by Provinces, in the different classes of schools, during the Fiscal Year ended March 31, 1922

DAY SCHOOLS

Province	Number of Schools	Undenominational	Denomination					Number on Roll Day Schools			Average Attendance	Percentage of Attendance	Standard					
			Roman Catholic	Church of England	Methodist	Presbyterian	Salvation Army	Boys	Girls	Total			I	II	III	IV	V	VI
Nova Scotia	14	.....	14	.....	.....	.....	.....	136	140	276	128	46·38	166	49	29	18	9	5
Prince Edward Island	2	.....	2	.....	.....	.....	.....	17	21	38	18	47·37	19	7	5	5	2	.....
New Brunswick	11	.....	11	.....	.....	.....	.....	146	132	278	177	63·63	102	71	48	45	11	1
Quebec	31	7	18	4	2	.....	.....	761	778	1,539	956	62·12	714	378	195	138	66	48
Ontario	80	35	21	15	9	.....	.....	1,449	1,211	2,660	1,539	57·44	1,319	418	444	313	157	9
Manitoba	37	2	6	21	7	1	.....	547	477	1,024	462	45·12	645	210	108	50	11	.....
Saskatchewan	20	1	4	12	1	2	.....	236	216	452	218	48·25	277	81	57	29	6	2
Alberta	6	.....	.....	1	5	.....	.....	148	162	310	128	41·29	230	30	38	9	3	.....
Northwest Territories	4	.....	2	2	.....	.....	.....	18	20	38	22	57·89	26	6	4	2	.....	.....
British Columbia	42	5	7	12	16	1	1	681	621	1,302	630	49·16	594	273	214	154	59	8
Yukon	3	.....	.....	3	.....	.....	.....	32	40	72	30	41·66	49	23	.....	.....	.....	.....
Total, Day Schools	250	50	85	70	40	4	1	4,171	3,818	7,990	4,348	54·42	4,141	1,546	1,142	761	324	73

BOARDING SCHOOLS

Nova Scotia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Prince Edward Island	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Brunswick	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quebec	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ontario	7	.....	4	2	.....	1	.....	213	209	422	361	85·54	197	78	58	40	35	14
Manitoba	8	.....	4	1	1	2	.....	287	361	648	598	92·25	220	86	114	105	71	52
Saskatchewan	11	.....	6	3	.....	2	.....	362	379	741	624	84·21	287	123	133	112	45	41
Alberta	18	.....	12	6	.....	.....	.....	407	441	848	750	88·44	343	181	156	108	44	13
Northwest Territories	3	.....	2	1	.....	.....	.....	62	101	132	140	85·89	51	36	25	45	6	.....
British Columbia	7	.....	4	1	.....	2	.....	163	213	376	331	88·03	105	65	90	58	39	19
Yukon	1	.....	.....	1	.....	.....	.....	17	19	36	34	94·44	23	4	4	4	1	.....
Total, Boarding Schools	55	.....	32	15	1	7	.....	1,411	1,723	3,234	2,838	87·72	1,226	573	583	472	241	139

Nova Scotia																		
Prince Edward Island																		
New Brunswick																		
Quebec																		
Ontario	4	1	1	1	1			271	272	543	484	86·56	151	102	116	79	54	41
Manitoba	1				1			71	61	132	118	89·39	33	33	17	15	17	17
Saskatchewan	1		1					116	135	251	197	78·09	92	50	37	33	17	22
Alberta	1		1					33	12	45	38	84·44	5	11	11	10	8	
Northwest Territories																		
British Columbia	9		6	2	1			432	395	827	685	82·83	269	174	175	116	65	28
Yukon																		
Total, Industrial Schools	16	1	9	3	3			923	875	1,798	1,522	84·65	550	370	356	253	161	108

SUMMARY OF

Province	Class of Schools			Total Number of Schools	Denominations					
	Day	Boarding	Industrial		Undenominational	Roman Catholic	Church of England	Methodist	Presbyterian	Salvation Army
Nova Scotia	14	...	...	14	...	14	...	...	...	...
Prince Edward Island	2	...	...	2	...	2	...	...	...	...
New Brunswick	11	...	...	11	...	11	...	...	...	...
Quebec	31	...	...	31	7	18	4	2	...	...
Ontario	80	7	4	91	36	26	18	10	1	...
Manitoba	37	8	1	46	2	10	22	9	3	...
Saskatchewan	20	11	1	32	1	11	15	1	4	...
Alberta	6	18	1	25	...	13	7	5	...	...
Northwest Territories	4	3	...	7	...	4	3	...	...	...
British Columbia	42	7	9	58	5	17	15	17	3	1
Yukon	3	1	...	4	...	...	4	...	...	...
Total	250	55	16	321	51	126	88	44	11	1

NOTE.—All boys at industrial schools are taught farming, and all girls, sewing, knitting and general household duties.

SESSIONAL PAPER No. 14

SCHOOL STATEMENT

Number on Roll			Average Attendance	Percentage of Attendance	Standard						Province
Boys	Girls	Total			I	II	III	IV	V	VI	
136	140	276	128	46·38	166	49	29	18	9	5	Nova Scotia.
17	21	38	18	47·37	19	7	5	5	2	.....	Prince Edward Island.
146	132	278	177	63·63	102	71	48	45	11	1	New Brunswick.
761	778	1,539	956	62·12	714	378	195	138	66	48	Quebec.
1,933	1,692	3,625	2,384	65·77	1,667	598	618	432	246	64	Ontario.
905	899	1,804	1,178	65·30	898	329	239	170	99	69	Manitoba.
714	730	1,444	1,039	71·95	656	254	227	174	68	65	Saskatchewan.
588	615	1,203	916	76·14	578	222	208	127	55	13	Alberta.
80	121	201	162	80·60	77	42	29	47	6	.....	Northwest Territories.
1,276	1,229	2,505	1,646	65·71	968	512	479	328	163	55	British Columbia.
49	59	108	64	59·26	72	27	4	4	1	.....	Yukon.
6,605	6,416	13,021	8,664	66·46	5,917	2,489	2,081	1,488	726	320	

INDIAN LAND STATEMENT

SHOWING the Number of Acres of Indian Lands sold during the year ended March 31, 1922, the total amount of purchase money realized and the quantity of land unsold at that date.

ONTARIO

Town or Township	County or District	Number of Acres Sold	Amount of Sale	Number of Acres Unsold	Remarks
		Acres	$ cts.	Acres	
Albemarle	Bruce			100·00	
Eastnor	"			358·00	
Lindsay	"			589·00	
St. Edmund	"			206·00	
Bury (town plot)	"			161·95	
Oliphant (town plot)	"			40·00	
Southampton (town plot)	"			2·00	
Wiarton (town plot)	"			8·05	
Islands off Saugeen Peninsula	"			163·55	
White Cloud Island	Grey			7·00	
Thessalon	Algoma	4·45	89 00	197·24	
Thessalon (town plot)	"			11·80	
Archibald	"				
Dennis	"				
Herrick	"			190·00	
Havilland	"			718·00	
Kars	"	129·50	40 28		
Apaquosh (town plot)	"			10·00	
Laird	"			3,586·00	
Vaukoughnet	"			800·00	
Kehoe	"			14,337·00	
Fenwick	"			1,893·50	
Cobden	"			370·21	
Ley	"			263·00	
Fisher	"			80·00	
Fisher (town plot)	"			141·90	
Tilley	"	281·00	161 00		
Tupper	"			540·50	
Assiginack	Manitoulin	193·00	62 00		
Bidwell	"			2·00	
Campbell	"			361·00	
Carnarvon	"	47·00	9 40	962·00	
Howland	"			750·00	
Sheguiandah	"	447·00	175 40		
Sheguiandah (town plot)	"			23·28	
Manitowaning (town plot)	"	5·00	252 00	22·63	
Tehkummah	"	180·00	100 00	1,338·10	
Sandfield	"			83·00	
Shaftesbury (town plot)	"			8·50	
Tolsmaville (town plot)	"			1,002·00	
Allan	"			282·00	
West Bay Reserve	"	185·93	1 00	8,244·07	
Billings	"			112·00	
Burpee	"			97·00	
Barrie Island	"			2·00	
Gordon	"			53·00	
Gore Bay (town plot)	"			2·50	
Mills	"			13·00	
Cockburn Island	"	100·00	20 00	8,542·00	
Dawson	"	270·00	130 00	5,487·00	
Robinson	"			9,500·00	
South Baymouth (town plot)	"			133·00	
Meldrum (town plot)	"			76·80	
Cayuga	Haldimand			100·00	
Cayuga (town plot)	"			33·36	
Dunn	"			1,548·00	
Caledonia (town plot)	"			50·00	
Shannonville (town plot)	Hastings	25	70 00	39	
Thurlow	"			130·00	
Deseronto (town plot)	"			4·40	
Tyendinaga	"			380·00	
Bedford	Frontenac			208·00	
Islands in River St. Lawrence	Prov. Ontario	5·52	640 00	8·71	
Islands in Georgian Bay	"	27·40	822 50		1,163 islands and islets.

INDIAN LAND STATEMENT—*Continued*

SHOWING the Number of Acres of Indian Lands sold during the year ended March 31, 1922, the total amount of purchase money realized and the quantity of land unsold at that date—*Continued.*

ONTARIO—*Concluded*

Town or Township	County or District	Number of Acres Sold	Amount of Sale	Number of Acres Unsold	Remarks
		Acres	$ cts.	Acres	
Wild Land Reserve	Rainy River	520·40	1,418 90	5,941 90	
Long Sault Reserve	"	97·50	877 50	412·69	
Little Forks Reserve	"			251·43	
Beaucage	Nipissing	320·00	1,448 00	15,347·42	
Commanda	"			23,901·58	
Pedley	"	644·21	1,871 00	5,936·30	
Islands, Otonabee Waters	Peterborough	20·47	252 00		
Neebing	Thunder Bay	15·53	2,000 00		
		3,494·16	10,430 98	116,125·76	

SASKATCHEWAN

Last Mountain Lake Reserve No. 80 A	Assiniboia			1,207·50	
Lakeview (town plot)	"	20·27	9,115 00	106·28	
Assiniboine Reserve	"			638·50	
Muscowpetung Reserve	"			1,463·40	
Kylemore (town plot)	Humboldt			19·58	
Lestock (town plot)	"	51	100 00	11·85	
Fishing Lake Reserve	"			618·30	
Crooked Lakes Reserve	Moosomin	160·00	1,440 00	3,343·86	
Swan Lake Reserve (7 A)	Saskatoon			320·00	
Moosomin and Thunderchild	West Sask	480·00	5,600 00	3,381·33	
Grizzly Bear Nos. 110 and 111	Humboldt			1,136·20	
Muscowequan Reserve	"	128·00	1,208 00	6,755·23	
Cote Reserve	"	152·00	800 00	336·59	
Keeseekoose Reserve	"			571·00	
Key Reserve	"	554·00	2,490 00	375·74	
Kamsack (town plot)	"			3·11	
Little Bone Reserve	"			3,776·50	
		1,494·78	20,753 00	24,064·97	

ALBERTA

Wabamun Reserve	North Alberta			1,759·86	
Wabamun (town plot)	"			456·13	
Sharphead Reserve	"			342·30	
Samson Reserve	"	415·24	5,942 88	2,639·42	
Louis Bull Reserve	"			1,076·00	
Duffield (town plot)	"			235·81	
Michel Reserve	"			342·00	
Blackfoot Reserve	South Alberta			9,456·61	
Sarcee Reserve	"			6,650·00	
Peigan Reserve	"			10,442·00	
		415·24	5,942 88	33,400·13	

MANITOBA

Gambler's Reserve	Marquette			160·00	
The Pas (town plot)	Neepawa			731·77	
Long Plain Reserve	Portage la Prairie	103·52	2,070 40	968·06	
Swan Lake Reserve	"	3·45	150 00		
		106·97	2,220 40	1,859·83	

INDIAN LAND STATEMENT—*Concluded*

SHOWING the Number of Acres of Indian Lands sold during the year ended March 31, 1922, the total amount of purchase money realized and the quantity of land unsold at that date—*Concluded.*

NEW BRUNSWICK

Town or Township	County or District	Number of Acres Sold	Amount of Sale	Number of Acres Unsold	Remarks
		Acres	$ cts.	Acres	
Tobique	Victoria	.....	.....	283·00	
Tabusintac	Northumberland	107·00	202 50	2,493·00	
Edmundston	Victoria	5·06	538 05	.....	
		112·06	740 55	2,776·00	

BRITISH COLUMBIA

Scowlitz Reserve No. 1	New Westminster	2·00	200 00	.....	
Campbell River Reserve No. 2	Vancouver Island	90·00	13,500 00	.....	
Deadmans Creek Reserve	Kamloops	48·23	1,446 90	.....	
Okanagan Reserve No. 1	Yale	17·70	177 00	.....	
Skwawkum Creek Reserve No. 3 Harrison River Band	New Westminster	13·33	333 25	.....	
Songhees Reserve	Esquimalt	1·09	1,471 50	.....	
Slosh or Shalath Reserve No. 1	Lillooet	6·20	150 50	.....	
Ruby Creek Reserve No. 2	Yale	54	150 00	.....	
Port Langley Reserve No. 2	New Westminster	1·90	380 00	.....	
Esquimalt	Esquimalt	23	310 50	.....	
		181·22	18,119 65	.....	

QUEBEC

Ouiatchowan	Lake St. John	.....	.....	3,917·14	
Dundee	Huntingdon	.....	.....	4,057·74	
Maniwaki (town plot)	Ottawa	.....	.....	39·61	
Timiskaming	Timiskaming	.....	.....	1,728·59	
Quarante Arpents	Laprairie	.....	.....	19·00	
		.....	.....	9,762·08	

GENERAL REMARKS

The land sold during the year amounted to 5,804.43 acres, which realized $58,207.46. The quantity of surrendered land in the hands of the department was approximately 187,988.70 acres. The principal outstanding, on account of Indian lands sold amounted to $2,076,929.10, a considerable portion of which has not yet become due.

CIVIL GOVERNMENT, 1921-22

Vote	Grant	Expenditure	Grant not used	Grant exceeded
	$ cts.	$ cts.	$ cts.	$ cts.
Salaries	148,040 00	141,090 26	6,949 00	
Contingencies	19,000 00	16,076 36	2,923 00	
Unexpended balance				9,873 38
	167,040 00	157,166 62	9,873 00	9,873 38

APPROPRIATION ACCOUNTS, 1921-22

—	Grant	Expenditure	Grant not used	Grant exceeded
Ontario and Quebec—	$ cts.	$ cts.	$ cts.	$ cts.
Relief	66,718 00	68,477 89		1,759 89
General expenses	73,717 00	76,764 53		3,047 53
Repairs to roads	12,700 00	10,890 54	1,809 46	
Clearing land	3,000 00		3,000 00	
Balance unexpended				2 04
	156,135 00	156,132 96	4,809 46	4,809 46
Manitoba, Saskatchewan, Alberta and Northwest Territories—				
Implements, tools, etc	5,190 00	4,722 31	467 69	
Field and garden seeds	9,013 00	8,713 33	299 67	
Live stock	2,150 00	2,777 26		627 26
Supplies for destitute	177,527 00	154,371 90	23,155 10	
Medical attendance, hospitals, etc	111,450 00	140,096 10		28,646 10
Triennial clothing	3,540 00	4,133 72		593 72
Surveys	11,000 00	7 65	10,992 35	
Sioux	8,145 00	9,225 37		1,081 37
Mills	5,750 00	9,716 61		3,966 61
General expenses	304,645 00	304,643 16	1 84	
Unexpended balance				1 59
	638,410 00	638,408 41	34,916 65	34,916 65
British Columbia—				
Salaries	68,130 00	67,792 18	337 82	
Relief	35,000 00	31,037 82	3,962 18	
Seed	8,450 00	5,711 34	2,738 66	
Medical	73,200 00	88,210 43		15,010 43
Travelling expenses	25,000 00	21,109 26	3,890 74	
Miscellaneous	26,660 00	26,786 21		126 21
Surveys	5,000 00	754 50	4,245 50	
Balance unexpended				38 26
	241,440 00	241,401 74	15,174 90	15,174 90
Annuities—				
Treaty 9		156 00		
Robinson Treaty	205,290 00	10,000 00	13,456 00	
Man., Sask., Alta. and N.W.T		181,678 00		
Unexpended balance				13,456 00
	205,290 00	191,834 00	13,456 00	13,456 00

APPROPRIATION ACCOUNTS, 1921-22—*Con.*

Vote	Grant	Expenditure	Grant not used	Grant exceeded
	$ cts.	$ cts.	$ cts.	$ cts.
Prince Edward Island—				
Salaries	1,160 00	1,040 00	120 00	
Relief and seed	1,875 00	2,208 68		333 68
Medical	1,350 00	1,501 92		151 92
Miscellaneous	250 00	181 55	68 45	
Repairs to roads	300 00		300 00	
Balance unexpended				2 85
	4,935 00	4,932 15	488 45	488 45
Nova Scotia—				
Salaries	6,240 00	4,929 17	1,310 83	
Relief	11,000 00	27,615 16		16,615 16
Medical	6,000 00	10,400 97		4,400 97
Miscellaneous	25,300 00	4,476 40	20,823 60	
Agriculture and seed	1,000 00	1,688 58		688 58
Repairs to roads	600 00	1,026 12		426 12
Balance unexpended				3 60
	50,140 00	50,136 40	22,134 43	22,134 43
New Brunswick—				
Salaries	3,184 00	3,196 22		12 22
Relief	18,000 00	17,358 12	641 88	
Medical	5,300 00	5,782 26		482 26
Miscellaneous	850 00	1,380 95		530 95
Repairs to roads	450 00	14 00	436 00	
Agriculture and seed	1,000 00	1,052 17		52 17
Balance unexpended				0 28
	28,784 00	28,783 72	1,077 88	1,077 88
Yukon—				
Relief, medical attendance and medicine	11,000 00	10,212 10	787 90	
General expenses	4,000 00	3,348 50	651 50	
Unexpended balance				1,439 40
	15,000 00	13,560 60	1,439 40	1,439 40
General—				
Surrender of land	50,000 00		50,000 00	
Relief	115,000 00	154,721 47		39,721 47
Tuberculosis	18,000 00	20,605 68		2,605 68
Printing and stationery	5,000 00	7,997 84		2,997 84
Assist. Acct. 310	3,000 00	3,000 00		
Surrender McKenzie River Dist	39,000 00	40,226 02		1,226 02
Surveys	3,000 00	1,627 69	1,372 31	
Smallpox, etc	15,000 00	15,406 44		406 44
Registration Fees	1,500 00	200 75	1,299 25	
Legal expenses	10,000 00	15,713 89		5,713 89
Balance unexpended				0 22
	259,500 00	259,499 78	52,671 56	52,671 56
Indian Education	1,363,420 45	1,363,419 71	0 74	
Bonus Vote 367		98,122 81		
Increases Vote 529		4,512 50		
Retirement Act, 1920		4,546 24		
Gratuities Act, 1918, Sec. 30		1,743 32		

RECAPITULATION—APPROPRIATION ACCOUNTS, 1921-22

Vote	Grant	Expenditure	Grant not used	Grant exceeded
	$ cts.	$ cts.	$ cts.	$ cts.
Civil Government	167,040 00	157,166 62	9,873 38	
Annuities	205,290 00	191,834 00	13,456 00	
Prince Edward Island	4,935 00	4,932 15	2 85	
Nova Scotia	50,140 00	50,136 40	3 60	
New Brunswick	28,784 00	28,783 72	0 28	
Ontario and Quebec	156,135 00	156,132 96	2 04	
Manitoba, Sask., Alta. and N.W.T.	638,410 00	638,408 41	1 59	
British Columbia	241,440 00	241,401 74	38 26	
Yukon	15,000 00	13,560 60	1,439 40	
General	259,500 00	259,499 78	0 22	
Indian Education	1,363,420 45	1,363,419 71	0 74	
Total	3,130,094 45	3,105,276 09	24,818 36	

INDIAN TRUST FUND

SHOWING transaction in connection with the Fund during the year ended March 31, 1922.

Service	Debit	Credit
	$ cts.	$ cts.
Balance March 31, 1921		$11,458,660 99
Collections on land sales, timber and stone dues, rents, fines and fees		689,271 91
Interest for year ending March 31, 1922		583,831 49
Legislative grants to supplement the funds		3,000 00
Outstanding cheques, 1919-20		211 03
Credit transfers during the year		10,365 00
Expenditures during the year	$ 1,340,730 48	
Debit Transfer unclaimed interest	2,032 51	
Balance March 31, 1922	11,402,577 43	
	$12,745,340 42	$12,745,340 42

REPORT

OF THE

DEPARTMENT OF MINES

FOR THE

FISCAL YEAR ENDING MARCH 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

No. 1968

To His Excellency Baron Byng of Vimy, G.C.B., G.C.M.G. M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

The undersigned has the honour to lay before Your Excellency, in compliance with 6-7 Edward VII, chapter 29, section 18, the report of the work of the Department of Mines, for the fiscal year ending March 31, 1922.

CHARLES STEWART,
Minister of Mines.

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REPORT

OF THE

DEPARTMENT OF MINES

FOR THE FISCAL YEAR ENDING MARCH 31, 1922

Honourable Charles Stewart,
Minister of Mines,
Ottawa.

Sir,—I have the honour to submit the Annual Report of the Department of Mines for the year ending March 31, 1922.

Details of the operations of the various branches of the Department are contained in the reports which follow of the heads of these branches. These reports deal with changes of staff, and classification, the activities of individual officers and divisions, and the more important results that have been obtained both in field and laboratory investigations. It is necessary, however, to refer here to an event which had an important bearing upon the personnel and work of the Department, namely, the reclassification. This was applied to the Department in 1919 and caused widespread dissatisfaction resulting in the resignation of a large proportion of the technical staff. It is satisfactory to record that a readjustment of the classification was approved by Council in October, 1921, but owing to the change of Government was not applied until May, 1922. The application of the new schedule of technical salaries has allayed to a considerable extent the unrest that existed, and this, combined with the depressed condition of the mining industry and the consequent lack of outside positions, is responsible for the fact that there have been no resignations of technical men during the past year.

It is, however, not to be expected that the present condition of quietude will be maintained, for it is still evident that by comparison with geological or mining departments of other countries and even universities, the Canadian scale of technical salaries is low and will be insufficient to retain the services of our best men when mining conditions throughout the country improve.

Although referred to in the report of the Director of the Victoria Memorial Museum, attention is here called to the excellent work, instituted by the Museum staff, of conducting a course throughout the winter of weekly illustrated lectures on the natural resources of Canada. In this the services of the Geological Survey staff have been enlisted, and moving pictures have been generously provided by the Department of Trade and Commerce. The course consists of a series of lectures for children on Saturday mornings and for adults on Wednesday nights. The response, particularly on the part of the children, has been excellent and most gratifying to the lecturers and committee in charge.

The expansion of the mining industry of Canada will necessitate increased appropriation and staff in order to meet the additional demands that are being made upon the Department as a result of that expansion, and in order to meet and solve the problems in fuel and mining technology that are constantly arising. The housing

of the Geological Survey staff and the staff and exhibits of the Museum under one roof has had a detrimental effect on the work and growth of the Museum, and the Museum can never fulfil its proper function as a National Museum until arrangements are made whereby a much greater proportion of the building is devoted to exhibition purposes. In fact the whole question of housing for the staff and laboratories of the Department is becoming more acute and will have to be considered in the near future.

The Peat Committee continued its work at Alfred, Ontario, in developing and trying out machinery for the making of air-dried peat fuel. The efforts of the committee were concentrated on one machine, for which a new conveying and spreading device was tried out. This was found to be entirely satisfactory though it was not possible to give it a full season's trial. Altogether some 5,000 tons of peat fuel were made, most of which was sold in the city of Ottawa. The work of the committee, though as yet incomplete, has shown that a very satisfactory fuel can be made from peat and that a very large demand can be created and in fact now exists for such fuel if it can be supplied at a reasonable rate.

The annual report for 1920 referred to the depressed condition of the mining industry generally, and it is satisfactory to record that there has been a distinct improvement in this industry during the latter part of 1921. A large proportion of the capital invested in the mining industry in Canada is supplied by the United States, and at the present time our principal foreign market for our non-metallic products is in that country. Unfortunately the proposed revision of the tariff in that country will make it more difficult for Canada to supply that market and it will be necessary to seek other markets for the products affected by the revision, which are mainly non-metallic products. It is possible that such markets may be obtained in Europe and especially Great Britain and it is the intention of the Department to go thoroughly into this question.

The question of British markets for our mineral products is being taken up with the Imperial Mineral Resources Bureau in London and it is hoped that this organization will be so developed as to act as an intermediary between the Canadian producer of minerals and the British consumer. Dr. W. G. Miller is the Canadian Governor on the Bureau, but owing to his inability to leave Canada last spring his place on the Board of Governors was temporarily taken by Dr. H. M. Ami, who rendered valuable service in this capacity.

Your obedient servant,

CHARLES CAMSELL,
Deputy Minister.

GEOLOGICAL SURVEY

W. H. Collins, Director

ORGANIZATION

A tabular statement of the organization of the Geological Survey was made in the Annual Report for the year ending March 31, 1921. This organization has been augmented by a Map Engraving Division, consisting of four copper-plate map engravers. Formerly, the engraving of maps for all departments was done in the Department of Public Printing and Stationery, but in December, 1921, it was decided to distribute the staff of engravers among the chief map-making departments; four were allotted to the Geological Survey. Under the present arrangement these four engravers, though still employed by the Department of Public Printing and Stationery, are quartered with the Geological Survey, and operate as part of its staff. This arrangement, permitting closer co-operation between draughtsmen and engravers, will reduce the amount of draughting and has already increased the production of engraved work and effected a saving in cost of nearly 50 per cent.

During the year the Civil Service Commission working in conjunction with the Department of Mines, has almost completed the reclassification of the employees of the Geological Survey and the revision of the scale of salaries. Although this reclassification has not been satisfactory in every respect as evidenced by the resignations, it has on the whole greatly improved conditions in the Survey. Since October 1, 1920, thirteen employees have been converted from a temporary to a permanent status, giving them an added security of position and the advantage of regular increases of salary. There has been some increase in the salary range of about half of the classes represented, and in a majority of these cases the adjustment of salary was made retroactive to April 1, 1919, or 1920, in order to compensate for delay in reclassification. The various classes of employees have been established on a more equitable footing, from which basis, as living conditions approach equilibrium, it should be easier to make further revisions.

CO-ORDINATION OF SURVEYS

Surveys for the preparation of contoured topographical maps are made by the Geological Survey, the Department of National Defence, and by the Department of the Interior. These organizations have conducted survey work for different immediate purposes, mainly in different areas, so there has been little or no overlapping or duplication work. There has not been, however, as close conformity in respect to standards of accuracy, scales of compilation and publication and other essential factors, as is requisite to make the results of these different organizations part of a uniform scheme of topographical mapping of Canada, comparable with the systems in effect in most other countries. On March 8, 1922, a Board of Topographical Surveys and Maps was created (P.C. 540), to effect this desired end, and it may now be hoped that, in future, the energies of the various topographic mapping organizations will be co-ordinated, economies effected, and more direct progress made in the systematic mapping of the country. The board consists of two representatives from each of the three departments concerned, the Geological Survey being represented by the Director, and the Chief of the Topographic Division.

FIELD OPERATIONS

The Geological Survey had forty-three parties operating in various parts of Canada during the summer season of 1921. Ten of these were engaged in making surveys for topographical maps which will be required as base maps for investigations of the geology, and mineral deposits. These topographical maps are also constructed to serve other practical purposes—highway construction, forestry, land settlement, etc.—and as unit contributions to the systematic mapping of Canada. The other thirty-three parties were engaged in geological work of various types. Nineteen were mapping mineralized districts or investigating the mode of origin, extent, and value of ore deposits. Five were engaged in the systematic geological mapping of the country, which is fundamental to more directly economic investigations. One was collecting fossil specimens for the Victoria Memorial Museum. One was collecting, for the Department of Justice, geological evidence relative to the Canada-Newfoundland boundary line parallel with the Labrador coast. Six carried on exploratory work in northern Canada.

The exploration of northern Canada is a special function of the Geological Survey. Over half of Canada, climatically, geographically, or topographically, is unsuited for agriculture, and the highly organized settlement possible only in agricultural regions. Yukon, the great Hudson Bay and Mackenzie River regions, and much of British Columbia have been explored and developed for their furs, their fish, and above all, for their mineral wealth. Between this great northern region, which is never likely to sustain a highly organized civilization, and the agricultural and industrial part of Canada, lies an intermediate zone which will in time become permanently settled, but in which the farmer must be preceded and beckoned by the lumberman, the prospector and miner, and the railway builder. The northern parts of Ontario and Manitoba, containing the Porcupine gold district, the Cobalt silver district, the Sudbury nickel-copper district, and the Mandy and Flin Flon mines, are parts of this zone which owe their industrial development initially to their mineral wealth. It has, therefore, been the inalienable and important function of the Geological Survey of Canada, since its foundation in 1842, as the scientific assistant to the prospector in his search for mineral wealth, to accompany him in his pioneer work and to be the chief Government organization engaged in the exploration of the vast unagricultural parts of Canada.

Between 1915 and 1920, when the internal energy of the country was turned to production rather than to new developments, Geological Survey field operations became largely restricted to problems of mineral production in districts within operating reach of transportation. Exploration work was almost suspended. Now, with a return to normal conditions, public attention is being directed once more to the search for mineral deposits, and the Geological Survey is also resuming exploration work. In 1921 a systematic exploration was begun of the petroleum-bearing region in the Mackenzie River basin. An expedition, also, was sent to investigate the commercial possibilities of vast deposits of iron formation on Belcher islands, Hudson bay, which, because of their accessibility by ocean-going vessels, are attracting much attention.

The geological field work done during the summer is itemized more fully below.

GEOLOGICAL FIELD WORK

W. E. Cockfield made detailed topographical and geological maps of three small areas (Stand-to hill, Rambler hill, and mount Cameron) in the vicinity of Mayo, Yukon Territory. These areas are mineralized with veins carrying silver-lead ores similar in origin to the rich silver-lead mines at Mayo, and constitute outlying parts

of one mineral district. A full report of Mr. Cockfield's work, illustrated with three geological maps, appears in the Summary Report of the Geological Survey, Part A.

F. H. McLearn made a detailed examination of the geological succession and fossil fauna of an area of 60 square miles surrounding Skidegate inlet, Queen Charlotte islands. This area contains a typical and fossiliferous succession of Cretaceous and Early Tertiary formations and should, as studied by Mr. McLearn, furnish a key or reference area for the geological mapping of the Cretaceous formations elsewhere along the Pacific coast. The principal coal deposits of British Columbia are contained in the Cretaceous, and a knowledge of its stratigraphy is, therefore, of practical importance.

George Hanson mapped geologically, on a scale of 1 inch to 1 mile, an area of 50 square miles situated on the upper part of Kitsault[1] river, Portland Canal district, B.C. This area lies along the eastern side of the Coast batholith and is part of the great mineral belt that fringes the batholith. The Kitsault area contains quartz veins carrying values in silver. A full account of these ore deposits, with a geological map of the area, is given in the Summary Report, Part A.

Victor Dolmage continued an exploration of the west side of the Coast batholith, which, like the eastern margin, is a great zone of mineralization. This western edge coincides approximately with the highly indented Pacific coast of British Columbia, a circumstance which renders any mineral discovery easy of access. Mr. Dolmage's work in 1921 consisted of a geological exploration of the coast-line and islands from Burke channel northward to Douglas channel. A report upon the geology, mineral deposits, and hot springs of this section, with a preliminary geological map, appears in the Summary Report, Part A.

J. D. McKenzie commenced a detailed examination and mapping of the Cretaceous coal basin on the east side of Vancouver island, in the vicinity of Comox and Nanaimo. Operating collieries find difficulty, owing to the complicated structure of the coal measures, in correlating the result of their exploratory drilling and in planning underground operations. Mr. McKenzie is endeavouring to relieve this difficulty by working out the underground structure of the basin. The investigation, which will extend over two or three years, is also part of a systematic investigation by the Geological Survey of the coal resources of Canada. Mr. McKenzie's work included examination of some copper deposits on Lasqueti island, a report upon which is included in the Summary Report, Part A.

C. E. Cairnes completed the geological mapping and examination of ore deposits of Coquihalla map-area, on the Kettle Valley railway just west of Hope. This area of 300 square miles contains deposits of gold, silver, copper, molybdenum, and manganese ores. A full report, accompanied by a geological map of the area on a scale of 1 inch to 1 mile, has been prepared and will be published as a Geological Survey memoir.

W. L. Uglow commenced the geological mapping on a scale of 1 inch to 1 mile of a belt of country about 10 miles on either side of the Canadian National Railway line which runs north from Kamloops to Prince George. The area completed this year in the general vicinity of Chu Chua contains coal, gold in veins and in placers, and silver-lead-zinc ore; reported platinum-bearing pyrite deposits were found not to contain this metal. A full report of Mr. Uglow's work, with a geological map, appears in the Summary Report, Part A.

W. A. Johnston commenced a study of the gold placers of Barkerville area, Cariboo district. These placers are of Tertiary age and, since their formation, the country has been glaciated, covered with a mantle of drift, and the drainage has been modified. As a result the placer deposits do not coincide in all cases with the modern stream channels. Mr. Johnston is endeavouring to work out the preglacial

[1] Since Part A, Sum. Rept., was published, the Geographic Board have changed this name from Kitzault to Kitsault.

drainage, and distribution of the placers. A preliminary report, accompanied by detail maps of parts of Antler and Williams creeks, appears in the Summary Report, Part A.

Mr. Johnston also worked out the areal geological mapping of an area in the vicinity of Vancouver, and made an examination, of scientific interest, of the sediments which are being deposited from glaciers in lake Louise, at Banff.

M. F. Bancroft continued the geological mapping of Lardeau area, south of Revelstoke. The area contains deposits of silver-lead-zinc ore, talc, manganese carbonate, and Iceland spar. A short review of his results is given in the Summary Report, Part A.

S. J. Schofield commenced the geological mapping of the Windermere map-area, situated on the railway line between Cranbrook and Golden. Preliminary to this, the geological formations were traced from near Cranbrook, where earlier geological work had been done, so that the formations in Windermere area could be properly correlated with those at Cranbrook. It is hoped that a continuation of the work Dr. Schofield is doing will eventually permit of correlating other isolated pieces of geological work and of combining these in one general geological map of south-eastern British Columbia.

J. R. Marshall commenced the geological mapping of the Kananaskis map-area, situated on the western boundary of Alberta between latitude 50° 30′ and 51°. This area contains important and extensive bituminous coal deposits within 45 miles of a railway. Mr. Marshall's work also is contributory to a systematic inventory of the coal resources of Canada. A summary of the work accomplished appears in the Summary Report, Part B.

D. B. Dowling, G. S. Hume, M. Y. Williams, and E. J. Whittaker commenced a systematic geographical and geological exploration of the Mackenzie River region, more particularly to ascertain the possibilities in this region of petroleum, natural gas, and other mineral deposits characteristic of stratified formations. Besides working out the stratigraphy and structure of the rock formations surveys are being made of all navigable waterways tributary to the Mackenzie so that reliable base maps can be compiled. A good survey of the Mackenzie was being made by the Topographical Surveys Branch of the Department of the Interior.

Mr. Dowling examined the country in the general vicinity of Norman, where a well yielding petroleum was drilled in August, 1920. Mr. Hume explored and mapped the country on the west side of Mackenzie river from Simpson northward to Wrigley. Mr. Williams performed similar work on the east side of the river. Mr. Whittaker explored on both sides of the river from Great Slave lake downstream to Simpson. Reports by all four geologists, accompanied by geological maps, appear in the Summary Report, Part B. A report upon the country south of Great Slave lake, by A. E. Cameron, is also included. Owing to the immense extent of the region this work will probably be continued for several years.

C. M. Sternberg collected fossil dinosaur and other vertebrate remains from near Red Deer, southern Alberta. A collection of fossil fishes was also made near Banff.

H. C. Cooke made a detailed investigation of the nickel-copper ore deposits at Oiseau river and Maskwa river, and of the gold ore deposits of Rice Lake district, all in Manitoba, east of lake Winnipeg. Mr. Cooke succeeded in ascertaining the mode of origin and the geological relationships of both these classes of ore deposits and indicated on what lines future prospecting work should be conducted. A full report upon his work with geological maps of the mineralized areas, constitutes Part C of the Summary Report.

T. L. Tanton continued geological mapping of an area of about 2,500 square miles in the vicinity of Port Arthur and Fort William. The area contains deposits of silver-lead, zinc, copper, and iron ores. Mr. Tanton's work is designed to assist

in the prospecting for these minerals by ascertaining their origin and geological relationships and supplying a reliable map of the various rock formations. Part of his results are described in Part D of the Summary Report.

Aleph Anrep made detailed surveys of three peat bogs near Fort William and Port Arthur and one near Verona, in Addington and Frontenac county, Ontario. This work is contributory to a systematic inventory of the peat fuel resources of Canada. A full report of the year's work, accompanied by plans of each bog, appears in the Summary Report, Part D.

Ellis Thomson continued the geological mapping on a scale of 1 inch to 1 mile of an area of 430 square miles near Missinaibi, Michipicoten district, Ontario. This area contains productive deposits of pyrite, and during the year a very promising discovery of gold was made on what are known as the Murphy claims. A preliminary report upon the Murphy and other gold discoveries is included in the Summary Report, Part D.

Sir Stopford Brunton mapped an area of 144 square miles on the Algoma Central railway 20 miles north of Sault Ste. Marie. This work was done in connexion with an investigation of various occurrences of iron ore which lie within the area. A full report accompanied by a geological map on a scale of 1 inch to 1 mile appears in the Summary Report, Part D.

J. F. Wright explored and mapped a Precambrian area lying south of Biskotasi, Ontario, on the main line of the Canadian Pacific railway. He also examined a reported discovery of iron ore 30 miles north of Blind River which proved to be of insignificant size.

T. T. Quirke mapped an area of about 200 square miles surrounding lake Wanapitei, near Sudbury. Mr. Quirke's work is in continuation of a programme of correlation of the Precambrian (chiefly Huronian) formations of northeastern Ontario which has been under way since 1914 and is now culminating in the production of a general geological map of northeastern Ontario. Mr. Quirke's work has done much to simplify and elucidate the complex geology of this extraordinarily mineralized region. A full report of his work during 1921, accompanied by a geological map on a scale of 1 inch to 1 mile, appears in the Summary Report, Part D.

H. V. Ellsworth commenced a systematic investigation of the rare-element minerals of Canada. These rare elements, including uranium, thorium, radium, cerium, beryllium, etc., are being applied in the arts and industries in many new and important ways and the demand for them is growing rapidly. In Canada, these minerals occur chiefly, so far as yet known, in the "Grenville" region of eastern Ontario and Quebec and Mr. Ellsworth's work was accordingly commenced in the district between Ottawa and Parry Sound, in which a number of discoveries of radioactive minerals have been made in recent years. A preliminary report of his results is given in the Summary Report, Part D.

M. E. Wilson continued geological mapping of an area of Precambrian formations near Madoc, Ontario. This area is one of a series of key areas which Mr. Wilson is extending across the "Grenville" subprovince of the Precambrian shield for correlational purposes. The Madoc area contains deposits of fluorspar, talc, pyrite, and other minerals and during 1921 attention was given particularly to the talc deposits as part of a systematic inventory of the talc resources of Canada.

Robert Harvie completed the geological mapping, on a scale of 4,000 feet to 1 inch, of an area of 210 square miles in the vicinity of Thetford and Black lake, Quebec. The area is part of the "Serpentine belt" and contains some of the most important asbestos mines in southern Quebec.

Eugene Poitevin investigated the minerals associated with the asbestos deposits near Black Lake, Quebec. This detailed investigation, covering 200 square miles, has thrown some light on the origin of chrysotile asbestos deposits.

F. J. Alcock made a topographical and geological survey of an area of 70 square miles in the vicinity of the Federal Zinc and Lead mine, Gaspe peninsula. This

area contains deposits of lead-zinc and copper ores, and is deserving of being prospected further. Two weeks were spent in examining geological sections on York river and the adjacent coast, in which vicinity a small amount of petroleum has been obtained by drilling wells. A full report of Mr. Alcock's work, including an account of the Federal Zinc and Lead mine, and illustrated with two geological maps, appears in the Summary Report, Part D.

G. A. Young visited Belcher islands, in Hudson bay, to investigate the value as iron ore of the iron formation which underlies a large part of the islands. The deposits are of enormous extent and are directly accessible by ocean-going vessels. Various examinations have been made during the last ten years for different private parties, but the resultant reports differed essentially regarding the commercial value of the deposits. An impartial official opinion seemed to be desirable either to confirm other favourable reports or to contradict them and so discourage further useless expenditure. The Belcher islands iron formation is of further interest in that huge areas of similar formation occur in the interior of New Quebec and, in the event of a favourable report upon the Belcher Islands occurrence, these other less accessible areas would become of enhanced interest. A full report of Mr. Young's results is comprised in Part E of the Summary Report.

W. S. McCann completed the geological mapping of an area near Moncton and the investigation of the oil-shale deposits which occur there. This work had been commenced by Mr. W. J. Wright, who resigned from the Geological Survey before the undertaking was finished. A memoir upon the area and the oil-shale deposits, accompanied by geological maps, is now in course of publication.

E. R. Faribault continued systematic geological and geographical mapping on a scale of 1 inch to 1 mile, of the Middleton and Paradise map-areas in northwestern Nova Scotia. A detailed examination was begun of the Nictaux and Torbrook iron ranges which occur in the area mapped. These ranges have yielded about 500,000 tons of iron ore and are still of economic interest.

W. A. Bell completed the areal and structural geological mapping of an area near Sydney, Nova Scotia, which contains important coal deposits. Geological work was commenced some years before by Mr. A. O. Hayes, who, however, resigned from the Survey before bringing the work entirely to a conclusion. A memoir embodying the combined results of the work of Mr. Hayes and Mr. Bell, accompanied by a geological map on a scale of 1 inch to 1 mile, has been completed and is in course of publication.

E. M. Kindle made, on behalf of the Department of Justice, an investigation at lake Melville of the geological and biological evidence bearing upon the question of the boundary between Canada and Labrador, belonging to Newfoundland. A full report on Mr. Kindle's results has been supplied to the Department of Justice.

TOPOGRAPHICAL DIVISION

W. H. Boyd, Chief Topographer, reports as follows:

The officers of the Topographical Division carried on field work from May until October, and during the remainder of the year were engaged in compiling and drawing the original manuscript maps of the areas surveyed.

The division includes two sections: one small section consists of two geodetic engineers who are wholly engaged in carrying out the necessary main control for the topographical mapping. This section is too small to fill all the demands of the work; consequently, in many cases the topographical parties have to execute their own main control; this necessarily results in a decrease of the amount of mapping accomplished. More geodetic engineers are required to fill the needs. In the control work carried on by the geodetic engineers, close co-operation is maintained with the Geodetic Survey of Canada. The control triangulation is executed with sufficient refinement

to be used as the secondary control system between the primary stations of the Geodetic Surveys. The other section consists of eight topographical engineers who are responsible for the actual map work.

Although the division is small, a great amount of work is accomplished. Some engineering clerks are needed to assist both sections in the office work. It is, at present, difficult for the division to keep up with the demands of the work, and, in some cases, altogether impossible.

MAIN CONTROL FOR TOPOGRAPHICAL MAPPING

S. C. McLean was engaged in carrying on triangulation in Quebec and New Brunswick. In Quebec, the control was for the mapping in the vicinity of Broughton. In New Brunswick, for the mapping in the vicinity of Moncton, and for projected mapping in the district. Both triangulation systems are based on primary stations established by the Geodetic Survey of Canada in the respective neighbourhoods.

R. C. McDonald carried out the triangulation southeastward from Mountain park, Alberta. This is for the control of the mapping in that vicinity and for future topographical requirements.

TOPOGRAPHICAL MAPPING

A. C. T. Sheppard commenced mapping an area in the vicinity of Comox and Cumberland on the east side of Vancouver island. About 100 square miles was completed. The scale is 1 mile to 1 inch with a contour interval of 50 feet. The mapping in this district is hindered by the heavy timber and lack of roads or trails inland.

D. A. Nichols mapped a section of country along the Canadian National railway from Fishtrap creek on North Thompson river down to and including Kamloops, B.C. This is a continuation of the mapping of the North Thompson valley begun by Mr. Nichols in 1918. The area completed this season covers about 280 square miles. The scale is 1 mile to 1 inch with a contour interval of 100 feet. North Thompson valley from Clearwater river to Kamloops is now completely mapped.

R. Bartlett mapped 250 square miles in Kootenay valley on the scale of 1 mile to 1 inch with 100-foot contour interval. This area extends from the International Boundary, 49th parallel, northward along the Kootenay valley, B.C.

W. H. Miller commenced mapping near Mountain park, Alberta. The map scale is 1 mile to 1 inch with a contour interval of 100 feet. About 250 square miles were completed.

E. E. Freeland made a series of control surveys for the preparation of the Missinaibi map-sheet, in Michipicoten district, Ontario. The greater part of this work consisted of primary transit and tape traverse along the Canadian Pacific railway from Franz to the point, a short distance east of Shumka, where Speight's meridian intersects the railway. The traverse is about 45 miles long and is for the control of the geographical mapping in the area.

K. G. Chipman mapped about 140 square miles of country in the vicinity of Broughton, Quebec, on the scale of 1 mile to 1 inch with a contour interval of 50 feet. In this work valuable assistance was rendered by Major J. B. Cochrane, Assistant Director of Military Surveys, who furnished a plot of the complete surveys of all the roads in the area. These roads had been surveyed by the Department of Militia and Defence in connexion with their projected mapping of the area.

A. G. Haultain mapped an area of 150 square miles to the south and west of Moncton, New Brunswick. This work was done on the scale of 1 mile to 1 inch with a 50-foot contour interval. The work adjoins the Moncton map-area previously mapped by this division in 1911.

OFFICE WORK

C. H. Freeman was retained in the office during the summer to assist in completing some of the back work of compilation and drawing topographical and geographical maps.

S. G. Alexander was engaged in carrying on the compilation and preparation of the special maps of the Fraser River delta and Greater Vancouver.

C. L. C. Allinson was attached to the division during the year as a temporary employee and rendered efficient service in the field and office.

MINERALOGICAL DIVISION

Eugene Poitevin, Acting Chief of the Division, reports as follows:

The Division of Mineralogy comprises a Museum of Economic Mineralogy, a mineralogical laboratory, and a section devoted to the preparation of educational collections. The staff consists of the Chief of the Division, two mineralogists, one rock analyst, one preparator and mineral collector, one clerk-stenographer, and two museum helpers.

Owing to ill health R. A. A. Johnston, Chief of the Division, was compelled to take six months' leave of absence from November 1, 1921. During this absence Eugene Poitevin has acted as Chief of the Division. Mr. Poitevin's field work is referred to on page 7.

LABORATORY AND OFFICE WORK

A large number of minerals from all over Canada were received for examination. Seven hundred and fifty memoranda were furnished as follows:

Yukon Territory	5
Alberta	12
British Columbia	159
Saskatchewan	41
Manitoba	18
Ontario	149
Quebec	149
Nova Scotia	137
New Brunswick	32
Prince Edward Island	4
Geological Survey Branch	32
Mines Branch	12
	750

Personal inquiries on the part of visitors seeking information on various matters pertaining to the mining industry were numerous, and, although no record of them was kept, required the expenditure of probably 10 per cent of the total working time.

The following papers have been published by officers of the division:

"The Annaheim Meteorite," by R. A. A. Johnston, F.R.S.C., and H. V. Ellsworth, M.Sc., Ph.D., Transactions of the Royal Society of Canada, Sec. IV, 1921.

Bulletin No. 32. "Inyoite from New Brunswick," by Eugene Poitevin and H. V. Ellsworth.

"Camsellite, a New Borate Mineral from British Columbia, Canada," by H. V. Ellsworth and Eugene Poitevin, Transactions of the Royal Society of Canada, Sec. IV, 1921.

Miss F. H. B. Richardson in addition to performing the stenographic work of the technical staff and its associated duties, has been occupied with the revision of the "List of Canadian Mineral Occurrences," Memoir No. 74.

M. F. Connor, rock analyst, completed analyses of eight minerals and five rock samples.

MUSEUM OF ECONOMIC MINERALOGY

This museum is maintained for the benefit of the public interested in the mineral industry, for students of mineralogy, and for the general public. For over half a century the Division of Mineralogy has been called upon at different times to prepare mineral collections for international expositions and the diplomas in its possession record the success it has achieved. This year a large collection of minerals representative of the leading Canadian mining camps was displayed at the Seventh National Exposition of Chemical Industries in the Eighth Coast Artillery Armory, New York, September 12-17.

EDUCATIONAL COLLECTIONS

A. T. McKinnon, mineral collector, spent one week collecting specimens in the Gatineau district, Quebec.

During the year ninety-one collections containing 3,252 mineral specimens have been assembled, and issued to educational institutions in Canada and elsewhere, as follows: British Columbia 4; Alberta 1; Saskatchewan 2; Manitoba 3; Ontario 37; Quebec 29; New Brunswick 4; Nova Scotia 2; foreign 9.

PALÆONTOLOGICAL DIVISION

E. M. Kindle, Chief of the Division, reports as follows on the work of the division.

FIELD WORK

The field work of Messrs. Kindle, McLearn, Whittaker, and Bell is referred to on pages 5, 6, and 8.

C. M. Sternberg spent two weeks collecting vertebrate and plant remains on Rocky creek, southern Saskatchewan. These collections in addition to their interest as museum specimens will contribute important evidence to the age determination of the beds which succeed the Fox Hills formation. The rest of the field season was spent in Red Deer valley, Alberta, where a carload of dinosaurian remains were collected from the Belly River series. A short collecting trip was also made to the fish beds near Banff which were discovered by Survey palæontologists a few years ago. A number of specimens were secured which will add one or more species to the fish fauna known previously from these beds.

OFFICE WORK

The office work of the division falls under two general heads.

(1) *The preparation of short reports designed for the use of members of other divisions of the Geological Survey.* Such reports are ordinarily based on collections of fossils made by geologists in connexion with areal mapping or the preparation of reports on economic geology. These reports which are made for other members of the staff at their request enable them to assign the formations with which they have to deal to their proper relative position in the general geological scale.

(2) *Research work on palæontological collections and problems related to such collections.* In collections of fossils from the west and northwest 50 per cent or more of the species are often found to be new to science. The description of such slightly known faunas and their proper correlation are of fundamental importance. Without in this way keeping the science of palæontology abreast of the discoveries

made by the extension of the work of the Survey over extensive fields, the division cannot hope to properly or adequately meet the needs of the members of the staff who require reports dealing with questions of correlation. The five papers recently published in Bulletin 33 illustrate the character of some of the shorter contributions of this division to this kind of work. These are: "Faunal and Sediment Variation in the Anticosti Sequence," by W. H. Twenhofel; "New Species of Devonian Crinoidea from Northern Canada," by Frank Springer; "The Range of Certain Lower Ordovician Faunas of the Ottawa Valley, with Descriptions of Some New Species," by Alice E. Wilson; "The Fossil Molluscan Fauna of the Marl Deposits of the Ottawa District," by E. J. Whittaker; "Two New North American Cycadeoids," by G. R. Willard.

Investigations concerning the accumulation or deposition of sediments have been undertaken both in the office and in the field to evaluate the significance of the physical features everywhere associated with sedimentary rocks and to infer from these the physical environments and their probable influence on fossil faunas. Investigations in this field during the year have included the fresh, brackish, and marine deposits and faunas of the Lake Melville district, Labrador, and the small lakes near Ottawa.

EXHIBITS

The installation of exhibits in the hall of palæontology in the Victoria Memorial Museum has continued throughout the year. The additions to these exhibits include a synoptic series of invertebrate fossils which was assembled by Miss Grace Stewart and the mounting of a fossil tree trunk 52 feet in length by Mr. Skillen.

DONATIONS

The donations received include fossils from Mr. M. J. O'Brien, Miss Fyles, and Mr. J. A. Ritchie.

BORINGS DIVISION

E. D. Ingall, Chief of the Borings Division, reports as follows:

The work of collecting information regarding boring operations throughout Canada has been continued substantially along the lines formerly pursued. An endeavour is being made to secure as much as possible of the geological information regarding the strata penetrated in borings for natural gas, petroleum, salt, water, etc. By securing the co-operation of those in charge of boring operations, records of wells are being accumulated which give particulars as to the mode of occurrence of the mineral products mentioned. The geological conditions affecting such occurrences can, furthermore, be worked out through the study of the complete sets of samples secured from the operators.

It is recognized that failing the collection of such illustrative sets of samples, our knowledge of the geological conditions in depth over the Great Plains and other large areas of Canada must be limited to surmise based on the surface study of very scattered and imperfect outcroppings of the various formations. Unfortunately the individual operator is as yet not fully appreciative of the value to him as well as to others of the accumulation of data and of its interpretation for his benefit by the geologist. For this reason the efforts to secure co-operation involve considerable educative work and a voluminous correspondence.

About sixty thousand samples have been accumulated since the inauguration of the Borings Division in 1908. These are filed under a system which ensures them being promptly available at any time. A final, complete, and intensive study of this material will be made, but to meet the needs of the driller during the progress of his work, special microscope and chemical preliminary determinations and correlations with known geological sections are also performed.

The initial problem of obtaining clues to boring operations, active or in contemplation, is solved in various ways. Some information comes through newspaper clippings, and through individuals. Use has been made of the Vancouver office of the Geological Survey for British Columbia activities and an attempt has been made to interest the Provincial Government engineers in charge of districts. The field geologists of the staff of the Geological Survey have also co-operated in making inquiries during the course of their summer field work. Arrangements have also been made with the Mining Lands and Yukon Branch of the Department of the Interior for securing information regarding borings in the northwest provinces and territories coming under their jurisdiction. In Manitoba close co-operation has been accorded by Mr. H. F. Ratheram, Superintendent of Drilling, for the Manitoba Government, especially in connexion with the important boring at Winnipegosis. In Ontario a basis of co-operation has been arranged between the Borings Division and the Commissioner of Gas for Ontario. This has operated successfully during the year, thanks to the sympathetic help rendered by Col. R. B. Harkness, the Commissioner.

Among other persons or companies too numerous to mention individually, thanks are tendered to the following who have taken special interest in the work of the Borings Division and rendered great help in prosecuting the same: The New Brunswick Gas and Oil Co., and the D'Arcy Exploration Co. for their help continued now through many years; W. B. McKenzie, Moncton, N.B. In Ontario, besides the general co-operation of Col. Harkness, Commissioner of Gas, thanks are tendered to Messrs. F. J. Carman, E. P. Rowe, D. A. Coste, Mgs. Provincial Natural Gas Co.; The Brunner Mond Co.; Geo. Sheppard of the Blue Mountain Gas and Oil Co.; The Public Utilities Commission of London, Ontario; The Municipal Water Commission of Kitchener, Ont.; H. Friend, drilling contractor for borings in Ottawa; and numerous others. In Manitoba besides the close co-operation rendered by H. F. Ratheram, Superintendent of Well Drills, help has been rendered by R. C. Wallace, Commissioner for Northern Manitoba; S. Eagle, Dauphin, Man.; Capt. E. Dougherty, for the Northern Manitoba Oil Co. For Alberta and Saskatchewan borings, especial thanks are due Mr. J. Ness of the geological staff of the Imperial Oil Co. and to other officials of that company; to A. M. Slack in connexion with borings in the Peace River district; J. H. Mahon for the Fort Norman Oil and Development Co.; the West Regent Oil and Development Co. For general co-operation in Alberta, thanks are tendered to Dr. J. A. Allan, University of Manitoba. In British Columbia, the operators of the following especially interesting borings have sent in samples, etc. The Boundary Bay Oil Co.; the Columbia Oil Co.; and the Crows Nest Oil Co.; and thanks are due for co-operation to E. S. Estlin of Vancouver, B.C. Special help has been given by the following officials of the Dominion Government; O. S. Finnie, B. Sc., Inspecting Engineer, Mining Lands and Yukon Branch, Ottawa; Sidney Ells of the Mines Branch, Department of Mines, Ottawa; the staff of the Vancouver office of the Geological Survey.

List of Samples and Records Received, 1921

Locality	Number of samples received	Number of wells	Number of records received
Maritime Provinces	3,049	17	162
Quebec	7	3	3
Ontario	3,151	58	147
Northwest Provinces	1,081	12	208
British Columbia	55	3	25
Total	7,343	93	545

A large number of samples are promised from The Imperial Oil Co., Ltd.

GEOGRAPHICAL AND DRAUGHTING DIVISION

C.-Omer Senécal, Geographer and Chief Draughtsman, reports as follows:

During the past fiscal year, two experienced members of the division resigned their positions after nine to twelve years' service to accept more lucrative appointments elsewhere, and no suitable successors have yet been obtained. The salaries offered do not seem to be sufficient to attract and hold in the service the required type of men.

The remaining staff, composed of the Chief of the Division, three principal map draughtsmen, three senior map draughtsmen, one geological engraver, and two clerks—all of whom discharged their duties faithfully and efficiently—are barely able to cope with the demands made on the division.

During the fiscal year seventy-nine new maps were completed and published; fifteen other maps are in the hands of the King's Printer; and thirty-four others are at various stages of progress of compilation or preparation for reproduction and printing. Among the last are two important maps, which were undertaken a few years ago, of large areas of the provinces of Ontario and Quebec, to consolidate, into generalized form, the geological studies and explorations which have been made of the various fields covered by these maps. The Ontario map, compiled on a scale of 8 miles to 1 inch, and engraved on copper, extends from the interprovincial boundary at lake Timiskaming westward to lake Superior and from lake Huron northward to latitude 50 degrees, embracing an area of approximately 90,000 square miles. The Quebec map covers the northwestern part of the province, adjacent to the Ontario map, between latitudes 47 degrees and 52 degrees and between the meridian of lake St. John and the interprovincial boundary, an area of about 140,000 square miles.

Three detailed maps of parts of Algoma district, Ontario, in the vicinities of Bruce Mines, Blind River, and lake Panache are nearly completed. The assembling of new surveys and explorations on the Nova Scotia series of geological sheets has been resumed. Control surveys were laid on eight new sheets of Queens and Shelburne counties and, if possible, the compilation is to be continued uninterruptedly to completion during the coming year. Four sheets, Nos. 87, 88, 89, and 90, Lunenburg county, the compilation of which was thoroughly revised, are ready for engraving, and the preparation of the engraver's copy only awaits the completion by the geologist of geological drafts, legends, sections, and other marginal information. The compilation is on the scale of 1 mile to 1 inch, and each sheet covers 216 square miles.

An unusually large number of zinc-cut drawings of index maps, diagrams, text figures, etc., have also been executed for illustrating memoirs and reports, and for other purposes. Two special maps of southern Manitoba were also prepared for publication in a report on the Agricultural college of Manitoba. Map-sheets of the survey of Fraser river, B.C., undertaken and completed in the Topographical Division, also passed through this office for publication. These sheets are included in the subjoined list of published maps.

The cataloguing of the Survey's records is steadily progressing, under the supervision of H. Lefebvre, who is also acting as Assistant Chief of the Division. Up to the present, 1,100 field books have been entered on index cards, and an equal number have been temporarily classified in groups by authors and years. Some 10,000 other map records of all descriptions, out of the Survey's large collection, have also been permanently catalogued.

As a representative of the Geological Survey, the Chief of this Division attended the meetings of the Geographic Board of Canada, and, as member of the executive committee of this board, devoted considerable time to the study and discussion of place-nomenclature and other geographical subjects. Rules of nomenclature, and lists of approved names, intended for use in all official publications of the Dominion Government, are published periodically in the *Canada Gazette*, and in the reports of the board.

The following are lists of maps remaining in the hands of the King's Printer, on March 31, 1922, and maps published during the fiscal year:

Maps in Hands of King's Printer, March 31, 1922

Publication number	Title	Date of requisition
155A, 1553	Algoma, Sudbury, and Timiskaming districts, Ontario; scale, 8 miles to 1 inch	Dec. 15, 1919
1585	Mackenzie River basin, northwestern Canada; scale, 50 miles to 1 inch. Third revised edition	Feb. 1, 1922
1897	Coquihalla River area, Yale district, British Columbia; scale, 1 mile to 1 inch. Topographical map	Oct. 20, 1921
1926	Kenogami Lake area, Timiskaming district, Ontario; scale, 1 mile to 1 inch	Feb. 27, 1922
1927	Round Lake area, Timiskaming district, Ontario; scale, 1 mile to 1 inch	Feb. 27, 1922
1932	Larder Lake area, Timiskaming district, Ontario; scale, 40 chains to 1 inch	March 8, 1922
1933	Fraser River delta, British Columbia; scale 1 mile to 1 inch. Topographical map	Feb. 2, 1922
1935	Part of Lemieux township, Gaspe county, Quebec; scale, 4,000 feet to 1 inch	Feb. 27, 1922
1936	Shields, Gaudette, Deroche, and Hodgins townships, Algoma district, Ontario; scale, 1 mile to 1 inch	Feb. 22, 1922
1937	Rambler Hill area, Mayo district, Yukon; scale, 2,000 feet to 1 inch	March 16, 1922
1940	Mount Cameron area, Mayo district, Yukon; scale, 2,000 feet to 1 inch	March 6, 1922
1941	Part of Antler creek, Cariboo district, British Columbia; scale, 1,000 feet to 1 inch	March 6, 1922
1742	Part of Williams creek, Cariboo district, British Columbia; scale, 1,000 feet to 1 inch	March 6, 1922
1743	Stand-to Hill area, Mayo district, Yukon; scale, 2,000 feet to 1 inch	March 6, 1922
1945	North Thompson valley, betwen Joseph creek and Louis creek, Kamloops district, British Columbia; scale, 2 miles to 1 inch. (Preliminary map)	March 28, 1922

Maps Published April 1, 1921, to March 31, 1922

Publication number	Title	Remarks
	YUKON	
1860	Keno Hill area, Mayo district; scale, 2,000 feet to 1 inch	Geology and topography
	MACKENZIE	
1872	Sketch map showing approximate geological structure of the Norman-Good Hope area, Mackenzie river; scale, 10 miles to 1 inch	Geology
1873	Sketch map showing the geology along Mackenzie river between the Ramparts and the Delta; scale, 43 miles to 1 inch	Geology
	BRITISH COLUMBIA	
1829	Salmon River area, Portland Canal mining division, Cassiar district; scale, 4,000 feet to 1 inch	Geology
1842	Forrest Group limonite deposits, Taseko valley, Lillooet district; scale, 4,000 feet to 1 inch	Geology
1843	Denain Creek limonite deposits, Taseko valley, Lillooet district, scale, 400 feet to 1 inch	Geology
1844	Feo Creek limonite deposit, Taseko valley, Lillooet district; scale, 400 feet to 1 inch	Geology
1845	Rae Creek limonite deposits, Taseko valley, Lillooet district, scale, 400 feet to 1 inch	Geology
1846	Battlement Creek limonite deposits, Taseko valley, Lillooet district; scale, 400 feet to 1 inch	Geology

Maps Published April 1, 1921, to March 31, 1922—*Continued*

Publication number	Title	Remarks
1847	Chilcotin Group limonite deposits, Taseko valley, Lillooet district; scale, 400 feet to 1 inch	Geology
1848	Limonite Group deposits, Taseko valley, Lillooet district; scale, 400 feet to 1 inch	Geology
1849	Taseko River area, Lillooet district; scale, 3,000 feet to 1 inch	Geology
1850	Float observations, ebb-tidal and river currents, Fraser river, between Woodwards landing and strait of Georgia; scale, 2,000 feet to 1 inch	Physiography
1851	Float observations, flood-tidal currents, entrance of Fraser river and strait of Georgia; scale, 2,000 feet to 1 inch	Physiography
1852	River and sea-bottom materials, water density observation and bank erosion, Fraser river between Woodwards landing and strait of Georgia; scale, 2,000 feet to 1 inch	Physiography
1853	Comparative soundings, Fraser river, between Woodwards landing and strait of Georgia; scale, 2,000 feet to 1 inch	Physiography
1854	Diagram showing the distribution of surface deposits, Fraser River delta; scale, 3 miles to 1 inch	Geology
1855	High-water data at Mission Bridge (freshet stages), Fraser river	Physiography
1856	Discharge data, Fraser river	Physiography
1857	Diagram showing changes in river channels, Fraser river between Woodwards landing and strait of Georgia	Physiography
1858	Diagram showing seaward advance of Fraser River delta; scale, 1 mile to 1 inch	Physiography
1859	Route map of country between French Bar creek (Fraser river) and Taseko lake, Lillooet district; scale, 6 miles to 1 inch	Geology
1901	Upper Kitsault valley (Alice arm), Cassiar district; scale, 3,000 feet to 1 inch	Geology and topography
1905	Fraser river, Sand Heads sheet; scale, 1,000 feet to 1 inch	
1906	Fraser river, Steveston sheet; scale, 1,000 feet to 1 inch	
1907	Fraser river, Ladner sheet; scale, 1,000 feet to 1 inch	
1908	Fraser river, Deas Island sheet; scale, 1,000 feet to 1 inch	
1909	Fraser river, Tilbury sheet; scale, 1,000 feet to 1 inch	
1910	Fraser river, Annacis sheet; scale, 1,000 feet to 1 inch	
1911	Fraser river, New Westminster sheet; scale, 1,000 feet to 1 inch	
1912	Fraser river, Port Mann sheet; scale, 1,000 feet to 1 inch	
1913	North arm of Fraser river, Poplar Island sheet; scale, 1,000 feet to 1 inch	
1914	North arm of Fraser river, Boundary Road sheet; scale, 1,000 feet to 1 inch	
1915	North arm of Fraser river, Marpole sheet; scale, 1,000 feet to 1 inch	
1916	North arm of Fraser river, Tone Island sheet; scale, 1,000 feet to 1 inch	
1917	North arm of Fraser river, Point Grey sheet; scale, 1,000 feet to 1 inch	
1918	Burrard inlet, Vancouver sheet; scale, 1,000 feet to 1 inch	
1919	Burrard inlet, Second Narrows sheet; scale, 1,000 feet to 1 inch	
1920	Burrard inlet, Dollarton sheet; scale, 1,000 feet to 1 inch	
1921	Burrard inlet, Burnet sheet; scale, 1,000 feet to 1 inch	
1922	Burrard inlet, Port Moody sheet; scale, 1,000 feet to 1 inch	
1923	Fraser river, triangulation control	
1924	North arm of Fraser river, triangulation control	
1925	Burrard inlet, triangulation control	
	ALBERTA	
1830	Vermilion, townships 47 to 55, ranges 5 to 10, west of fourth meridian; scale 3 miles to 1 inch	Topography
1831	Vegreville, townships 47 to 55, ranges 11 to 16, west of fourth meridian; scale, 3 miles to 1 inch	Topography
	MANITOBA	
1771	Winnipegosis, townships 30 to 37, ranges 11 to 23, west of principal meridian; scale, 3 miles to 1 inch	Soil geology
1802	Upper Whitemouth river; scale, 3 miles to 1 inch	Soil geology
1838	Rat River route from Threepoint lake to Southern Indian lake; scale, 8 miles to 1 inch	Geology
1839	The terminal moraine of the Seal-Churchill divide; scale, 6 miles to 1 inch	Geology

Maps Published April 1, 1921, to March 31, 1922—*Continued*

Publication number	Title	Remarks
1841	Diagram showing Maskwa River nickel-copper deposits; scale, $\frac{1}{2}$ mile to 1 inch	Geology
1861	The Ospwagan Lake-Burntwood River area; scale, 2 miles to 1 inch	Geology
1928	Oiseau River area (township 17, ranges 15 and 16, east of principal meridian); scale, $\frac{1}{2}$ mile to 1 inch	Geology
1929	Rice Lake area (townships 23 and 24, ranges 13 and 14), east of principal meridian); scale, $\frac{1}{4}$ miles to 1 inch	Geology
	ONTARIO	
1836	Explored routes in a belt traversed by the Canadian National railways (between Longlac and Nipigon); Thunder Bay district; scale, 4 miles to 1 inch	Geology
1865	Monerieff and Hess townships, Sudbury district; scale, 1 mile to 1 inch	Geology
1875	Beverley peat bog, Beverley and Flamboro W. townships, Wentworth county; scale, 2,400 feet to 1 inch	Economic geology
1876	Halton peat bog; Nassagaweya township, Halton county; scale, 1,600 feet to 1 inch	Economic geology
1877	Aberfoyle peat bog, Puslinch township, Wellington county; scale, 1,600 feet to 1 inch	Economic geology
1878	Pelee Point peat bog, Mersea township, Essex county; scale, 2,400 feet to 1 inch	Economic geology
1879	Harrowsmith peat bog, Portland township, Frontenac county; scale, 1,600 feet to 1 inch	Economic geology
1884	Thedford peat bog, Bosanquet township, Lambton county; scale, 2,400 feet to 1 inch	Economic geology
1885	Maybrooke peat bog, Harley and Kerns townships, Timiskaming district; scale, 1,600 feet to 1 inch	Economic geology
1886	Nellie Lake peat bog, Newmarket, Aurora, McCart, and Calvert townships, Timiskaming dist.; scale, 2,400 feet to 1 inch	Economic geology
1887	Drinkwater peat bog, Matheson township, Timiskaming district; scale, 1,600 feet to 1 inch	Economic geology
1889	St. John peat bog, St. John township, Timiskaming district; scale, 1,600 feet to 1 inch	Economic geology
1890	Brower peat bog, Brower and St. John townships, Timiskaming districts; scale, 1,600 feet to 1 inch	Economic geology
1891	Cochrane peat bog, Lamarche township, Timiskaming district; scale, 1,600 feet to 1 inch	Economic geology
	QUEBEC	
1835	Beauceville, Beauce county; scale, 4,000 feet to 1 inch	Geology and topography
1880	St. Luc peat bog, Champlain county; scale, 2,400 feet to 1 inch	Economic geology
1892	Clair peat bog, Dorchester and Bellechasse counties; scale, 1,600 feet to 1 inch	Economic geology
1893	St. Joseph peat bog, Lauzon seigniory, Dorchester county; scale, 1,600 feet to 1 inch	Economic geology
1894	"A" and "B" peat bogs, Isle-Verte seigniory, Temiscouata county; scale, 1,600 feet to 1 inch	Economic geology
1895	St. Arsène peat bog, Lepare and Lachenaie seigniories, Temiscouata county; scale, 1,600 feet to 1 inch	Economic geology
1896	St. Anaclet peat bog, Lessard and Lepage-Thibierge seigniories, Rimouski county; scale, 2,400 feet to 1 inch	Economic geology
1899	Direction of local glaciers, Gaspe peninsula, Quebec; scale, 12 miles to 1 inch	Surface geology
1934	Federal Zinc and Lead mine and vicinity, Lemieux township, Gaspe county; scale, 400 feet to 1 inch	Geology
	NEW BRUNSWICK	
1888	Cudmore, Hicks, "B", Canaan, Gades, and "A" peat bogs, Moncton parish, Westmorland county; scale, 2,400 feet to 1 inch	Economic geology
1931	Rosevale oil-shale area, Albert county; scale, 800 feet to 1 inch	Geology

MAP ENGRAVING DIVISION

Robert Veitch, in charge of the Map Engraving Division, reports as follows:

An arrangement was consummated in December, 1921, between the Labour (Printing and Stationery Branch), Department of Interior (Natural Resources Intelligence Branch), Mines (Geological Survey), and Naval Service (Hydrographic Survey), whereby the staff of copper-plate map engravers hitherto maintained by the Department of Public Printing and Stationery was distributed among the Natural Resources Intelligence Branch, Geological Survey, and Hydrographic Survey. By this arrangement, four engravers, Robert Veitch, J. W. Tuttle, A. Stewart, and W. W. Arnold were allotted to the Geological Survey on December 5. These four engravers, though still officially part of the staff of the Department of Public Printing and Stationery, have quarters with the Geological Survey and operate for all practical purposes as part of the Survey organization.

Between December 5, 1921, and March 31, 1922, the staff has been partly engaged in completing for the Post Office Department the engraving of a series of postal maps; a chart for the Naval Service (Hydrographic Survey); and completing the topographic plates of the Coquihalla River area, Yale, B.C., map, which were in progress at the time of transfer. In addition plates for the Fraser Delta topographic map (Geological Survey) have been commenced and brought well towards completion.

PHOTOGRAPHIC DIVISION

G. G. Clarke, Chief Photographer, reports that the following work was done by the Photographic Division:

	Number
Contact prints, 4 by 5 inches to 36 by 48 inches	14,217
Bromide enlargements, 4 by 5 inches to 40 by 72 inches	807
Films and plates developed, 3¼ by 4¼ inches to 6½ by 8½ inches	3,830
Dry plate negatives, 4 by 5 inches to 11 by 14 inches	286
Wet plate negatives, 8 by 10 inches to 24 by 30 inches	176
Prints on zinc plates, 11 by 14 inches to 24 by 36 inches	97
Proofs from zinc plates, 11 by 14 inches to 24 by 36 inches	75
Photostat copies, 7 by 11 inches to 11 by 14 inches	55
Lantern slides, 3¼ by 4 inches	1,389
Photographs and titles mounted	1,539
Total	22,471

The Geological Survey collection of photographs now comprises 55,000 negatives. These pictures have been accumulated by officers of the Survey chiefly during the last fifty years and are representative of all parts of Canada, and from the United States boundary to the Arctic ocean. They cover an extraordinary range of interesting subjects and many of the older ones have now acquired historical value as records of the progress and development of the country. In order to make this collection more available to the public a set of photographic prints, mounted and classified according to subjects, is being prepared and placed in the Geological Survey library. An arrangement has also been made recently whereby, as time permits, photographic prints, enlargements, and lantern slides will be made on request from persons outside the Department at about the cost of preparation. Advance photographic copies of maps, photostat reproductions of pages from rare reports, and other work of the kind will also be done. This work for the public will be subordinated to the official photographic work for the Department of Mines and will be executed in an amount dependent upon the resources of the Photographic Division, which is at present in need of an additional photographer.

Tariff of Charges

Photo prints, unmounted	¼ cent per square inch
Enlargements	¾ " "
Maps from wet plate negatives (on paper)	½ " "
Maps from wet plate negatives (on linen)	½ " "
Photostat negatives and prints	½ " "
Mounting of prints	½ " "
Lantern slides from negatives on file	40 cents each

GEOLOGICAL INFORMATION AND DISTRIBUTION DIVISION

Wyatt Malcolm, Chief of the Division, reports:

The work of the division consists of giving out information regarding the geology and mineral resources of the country. This is given out in the form of correspondence, memoranda, and published reports and maps. In addition to dealing with a large portion of the technical correspondence of the Geological Survey the division prepared articles during the year for publication in the *New York Commercial*, the *Gazette, Industrial Canada*, the *Canada Year Book*, and the *Bulletin of the Canadian Institute of Mining and Metallurgy*. A pamphlet on the economic minerals of Canada was prepared for distribution at the Seventh National Exposition of Chemical Industries and the Chief of the Division attended this exposition for the purpose of imparting information orally regarding Canada's natural resources.

The distribution of the publications of the Geological Survey and of the Victoria Memorial Museum is made by this division. During the year, 73,992 publications, exclusive of the French editions, were distributed. Of these 24,520 were sent to addresses on the mailing lists and 49,472 were distributed in compliance with written and personal requests for named publications or requests for general or specific information.

The Division consists of a chief and five assistants.

LIBRARY

Mrs. F. E. Forsey, Librarian, reports that the library now contains over 40,000 volumes, including almost all the important scientific and technical publications treating of the subjects in the work of the Survey and Museum, as well as the necessary guides, bibliographic aids, and reference books.

The additions during the year were as follows:

Volumes received as gifts or exchanges	533
Books purchased	379
Periodicals subscribed for	171
Periodicals received in exchange	88
Maps received	192
Pamphlets received	241

This statement does not include publications appearing in parts, such as the results of the various scientific expeditions, namely the Canadian Arctic Expedition, the Swedish South Polar, the Danish Ingolf, and the Australasian Antarctic expeditions, and others being purchased by or presented to the Library.

The volumes collated and prepared for the binder numbered 505; several bibliographies were prepared by the staff and a number of letters and other papers translated from foreign languages for other divisions of the Survey.

The cataloguing included current accessions, and the analytical cataloguing of such older sections of the collection as State Geological Surveys, as well as sixteen

sets of periodicals. The classification scheme and the catalogue have served as guides for the librarians of a number of government libraries who have visited us from time to time.

Considerable progress has been made in the classification and arrangement of the maps, photographs, and lantern slides. The cataloguing of the 1,228 Canadian maps in the collection has been brought up to date and the maps of other countries are arranged according to a system that makes them easily accessible.

The lantern slides filed in the library now number 1,423, of which 693 have been catalogued during the year. The slides have been in constant use, not only by the staff of the Survey, but also as loans to educational institutions for lecture purposes.

The collection of photographs, illustrating as it does the work of the Survey and Museum staffs and covering the fields of geology, palæontology, economic geology, anthropology, biology, etc., has proved extremely useful and has been frequently consulted by visitors as well as by the members of the Department.

By a system of library loans, scientific men in any part of Canada may borrow books required in research work. Individuals not known to the Department may obtain books through any library willing to accept the responsibility of having the conditions of loan properly discharged. During the year books have been loaned in this way to scientific workers in five provinces, in eight universities, and very frequently to the various departmental libraries situated in Ottawa.

VICTORIA MEMORIAL MUSEUM

William McInnes, Director

The exhibits in the halls of the Victoria Memorial Museum building have been considerably augmented during the year and the study collections very much increased. The public of Ottawa and visitors from other parts of the world have shown their appreciation of the exhibits by attending in constantly increasing number as the fact that the exhibition halls were again open to the public became more generally known.

The maintenance of a display of exhibits open to the public, though an important part of the functions of a national museum, is by no means its whole duty.

The scientific study of the natural history, anthropology, and palæontology of the country and the accumulation of adequate collections in all these branches are perhaps even more important. The educational value of such an institution is beyond estimate and its adequate maintenance is accepted generally as, in part, a measure of the cultural standing and progressive spirit of the country. The present collections are a nucleus on which may be built a national museum that will worthily represent Canada.

Under the auspices of the Museum and the Geological Survey, two series of public lectures were held in the Auditorium during the winter months, one for children and one for adults. The lectures were illustrated by stereopticon, and by motion pictures, for which the Department is indebted to the Exhibits and Publicity Branch of the Department of Trade and Commerce. The children's meetings were particularly successful and lectures in this series had more than once to be repeated once, and even two times, to accommodate the crowd of appreciative youngsters. The programme carried out included the following lectures, each given for school children and repeated in modified form for adults:

Hunting Dinosaurs—The Real Giants of the Past, by Charles M. Sternberg, Geological Survey. Moving picture: Hunting Dinosaurs.

Asbestos or Fire-Proof Cotton, by R. Harvie, Geological Survey. Moving picture: Asbestos Mining.

Animal Life of our Pacific Coast Islands, by Clyde L. Patch, Victoria Memorial Museum. Moving picture: Salmon Fishing on the Skeena.

Water Power or White Coal, by E. J. Whittaker, Geological Survey. Moving picture: Water Powers of Canada.

The Indians of the Plains, by D. Jenness, Victoria Memorial Museum. Moving picture: The Last of the Bison.

Modes of Crossing Canada—from Canoe to Aeroplane, by F. J. Alcock, Geological Survey. Moving picture: Building Aeroplanes.

The Glacial Age, by M. E. Wilson, Geological Survey. Moving picture: The Valley of the Yoho.

Pioneer Days in British Columbia, by C. M. Barbeau, Victoria Memorial Museum. Moving picture: Vancouver—The Queen of the Coast.

Our Selkirk Mountains and their Precious Metals, by M. F. Bancroft, Geological Survey. Moving picture: The Robson Trail.

Down the Mackenzie River to the Oil Fields, by D. B. Dowling, Geological Survey. Moving picture: Down North.

Northern Ontario's Natural Resources, by T. L. Tanton, Geological Survey. Moving picture: Mining in Northern Ontario.

My Summer in the Norway of Canada, by Harlan I. Smith, Victoria Memorial Museum. Moving picture: The Norway of America.

Boring Deep Wells for Valuable Minerals, by E. D. Ingall, Geological Survey. Moving picture: A World of Scenic Wonder.

D. B. Dowling, Harlan I. Smith, Lecture Committee.

Some of the lectures were repeated by request in other parts of the city and in neighbouring towns.

The Auditorium, on otherwise unoccupied nights, was lent to various scientific societies, thirty-six meetings of this character having been held, including those of the Royal Society of Canada, the Engineering Institute of Canada, and societies with like aims. The privilege to use such a meeting place was highly appreciated by the various societies and their thanks to the Department of Mines were in many cases expressed in formal votes.

Pending the completion of arrangements for this permanent transfer to the Museum staff Mr. M. O. Malte acted as Honorary Curator of the Herbarium and the thanks of the Department are due to him for assuming this work in addition to his ordinary duties in the Department of Agriculture.

A summary account of the field work of the staff is included in the divisional reports.

ANTHROPOLOGICAL DIVISION

ETHNOLOGY AND LINGUISTICS

Exhibits

E. Sapir, Chief of the Division, reports that the anthropological exhibits in the Victoria Memorial Museum have remained almost unchanged and fully accessible to the public during the year. The lack of both sufficient space and suitable cases is keenly felt.

Acknowledgments are due to the following for donations of specimens or photographs to the Museum: F. Macnamara, E. Z. Massicotte, Miss Parmelee, and Father Turquetil.

Five anthropological field trips, undertaken during the summer, evince progress towards the restoration of pre-war conditions in the Division of Anthropology. Of these trips one was a combined archæological and ethnological trip to Bella Coola, B.C., undertaken by H. I. Smith. A second was an intensive archæological field research in a village site near London, Ont., of a culture different from those hitherto intensively studied. This trip, as well as the archæological part of Mr. Smith's field work, are reported under "Archæology". D. Jenness spent two months investigating the social organization and history of the Sarcee Indians of Alberta. F. W. Waugh left Ottawa in May to investigate the Nascopi Indians of northern Quebec, and continued the work throughout the year. T. F. McIlwraith began an investigation of the social organization, religion, and allied topics of the Bella Coola Indians of British Columbia.

E. Sapir continued to work on the large body of Nootka text material obtained in the field and from Indian interpreters. This material is far too bulky to be published in the form of a single volume but should appear as a series of text volumes. The first volume is nearing completion. It consists of a set of Nootka tales and of a larger set of selected texts intended to illustrate various phases of Nootka ethnology. The texts are being carefully edited, annotated, and translated; a limited proportion of the text material is provided with an interlinear translation for the use of the linguistic student. In later volumes it is planned to include other ethnological texts and the large set of family legends and origin myths on file in the division. The linguistic-sociological review of the kinship systems of Algonkin, Wiyot, and Yurok, previously reported on, is now completed and will, it is hoped, be published in the near future. A Paiute dictionary was prepared which will, in all likelihood, be published by the University of Pennsylvania. The general American Indian linguistic researches previously referred to were continued. The following

papers resulting from these researches were published: "The Hokan and Coahniltecan Languages" (International Journal of American Linguistics, I, 1917-20, pp. 280-90); "A Note on the First Person Plural in Chimariko" (International Journal of American Linguistics, I, 1917-20, pp. 291-94); "A Bird's-eye View of American Languages North of Mexico" (Science, N.S., October 28, 1921, p. 408). As first instalments in a series of Nadene studies, were prepared "An Athabaskan Type of Relative" and "The Phonetics of Haida." In the course of the year Harcourt, Brace and Co. (New York) published a general work by Mr. Sapir entitled "Language, an Introduction to the Study of Speech"; this is mentioned here because it embodies a certain amount of material based on Canadian linguistic researches.

H. I. Smith spent about three months in the Bella Coola Indian area of British Columbia, continuing the work which he began last year. This research was devoted partly to archæological reconnaissance, but mainly to a study of the material culture of the Bella Coola Indians. Mr. Smith's researches were supplemented by a collection of ethnological objects, some of which were from Carrier Indians who were visiting Bella Coola. He also secured skeletal remains, a plaster of Paris life mask, and photographs of Bella Coola technology and Carrier types.

D. Jenness has been continuing his work on the Eskimo reports in the Canadian Arctic Expedition series. His first memoir, "The Life of the Copper Eskimos", a volume of 277 closely printed pages, was published in January, 1922, by the Department of the Naval Service. This work was very highly reviewed by the London *Times*. Two memoirs, "Myths and Traditions from Alaska, the Mackenzie Delta, and Coronation Gulf", and "String Figures of the Eskimos" are now ready for the press; a fourth memoir, "The Songs of the Copper Eskimos", undertaken in collaboration with Miss Helen H. Roberts of New York, is nearing completion, and considerable progress has been made with two others. Mr. Jenness has also published during the past year two articles on Eskimo subjects; one, "The Cultural Transformation of the Copper Eskimos" appeared in the Geographical Review, October, 1921; the other "The 'Blond' Eskimos", in the American Anthropologist, October-December, 1921. In addition to this work Mr. Jenness spent the two months of July and August, 1921, among the Sarcee Indians of Alberta, gathering information relating to their earlier organization and history. This important tribe had been greatly neglected hitherto, and was represented in the Museum by only four specimens; as a result of Mr. Jenness' visit, however, the Museum now possesses a large and fairly representative collection.

F. W. Waugh, who left Ottawa in May to investigate the Naseopi Indians of northern Quebec, went into the interior from Nain. When last heard from he had done a considerable amount of work on the material culture of the Nascopi. As they were greatly reduced in numbers during the winter of 1918-1919, there is little likelihood that information can be obtained from them unless it is secured soon. Mr. Waugh has also had an opportunity to investigate the material culture of the Eskimo of the Labrador coast.

The following manuscripts have been completed during the year and await publication:

"An Athabaskan Type of Relative," by E. Sapir.
"The Phonetics of Haida," also by E. Sapir.
"Myths and Traditions from Alaska, the Mackenzie Delta, and Coronation Gulf," by D. Jenness.
"String Figures of the Eskimos," also by D. Jenness.

In addition the following manuscripts have been received:

"Songs of the Copper Eskimo, a Transcription of Phonograph Records with a Discussion of the Music," by Miss Helen H. Roberts.
"Eskimo Physical Anthropology," by Professor John Cameron.
"Ethnological field notes on the Tahltan and Kaska or Southern Nahane," by James A. Teit.
Six manuscripts relating to the Nootka Indians, five of them consisting of texts and translations, by Alex. Thomas.

Accessions

Accessions of Ethnological Specimens

Specimens collected in course of field work by members of the Division of Anthropology include:

By H. I. Smith:
98 Bella Coola specimens from Bella Coola, B.C.
23 Carrier " "
1 Chilcotin " "
By D. Jenness:
129 Sarcee specimens from Sarcee Reserve, Calgary.
3 Assiniboine " "
1 Blackfoot " "
1 Cree " "

There have been received as gifts:

From F. Macnamara:
1 crooked knife, from Arnprior, Ont.
From E. Z. Massicotte:
1 woven belt, from Montreal, Que.
From Miss Parmelee:
Pair of model snowshoes from Tadoussac.

There have been acquired by purchase:

From Captain Joseph F. Bernard:
256 Eskimo specimens from Siberia, Alaska, Coronation gulf, and Adelaide peninsula.

In physical anthropology the following accessions have been received:

From H. I. Smith:
4 complete skeletons, a skull, and parts of 3 skeletons from vicinity of Ocean Falls, B.C.
From Dr. J. M. Swaine:
Fragment of skull from Okanagan, B.C.
From Miss Parmelee:
Jaw of child from Milk River, Alberta.

Accessions of Phonographic Records

Records taken by officials connected with the Division of Anthropology:

By D. Jenness:
45 records comprising 74 Sarcee songs, from Sarcee Reserve, Alberta.
By J. A. Teit:
24 records from Thompson river, Okanagan and Kootenay Indians.

Accessions of phonographic records of European folk-lore themes are recorded elsewhere.

Photographic and Draughting Work

Ethnological photographs taken or collected for the Museum by officers connected with the Division of Anthropology:

By C. M. Barbeau:
550 (approx.) Tsimshian and Carrier photographs from Hazelton and neighbourhood.
By H. I. Smith:
53 Bella Coola and Carrier photographs from Bella Coola, B.C.
By D. Jenness:
134 Sarcee photographs from Sarcee Reserve, Alberta.
By Photographic Division:
11 Sioux photographs of members of a delegation visiting Ottawa.

There have been received as gifts from individuals not connected with the Division of Anthropology:

From Father Turquetil:
3 photographs of Eskimos of Chesterfield inlet, Hudson bay.

Lantern slides made in the course of the year by the Photographic Division for the Division of Anthropology include:

2 lantern slides illustrating ethnology of the Sarcee Indians.
24 lantern slides illustrating ethnology of the Tsimshian Indians.
62 lantern slides illustrating ethnology of the Bella Coola and Carrier Indians.
10 lantern slides illustrating French Canadian folk-lore subjects.

FOLK-LORE (1921-22)

(C. M. Barbeau)

In the course of the past year the collections of French and English folk-lore materials deposited at the Victoria Memorial Museum have been considerably increased. The data were received as gifts, with the exception of those obtained in Champlain county, Que., by Mr. E. Z. Massicotte, for which a small appropriation was granted.

(The following list supplements the list in the Annual Report for 1920-21):

Folk-Lore Collections

(French)

The Massicotte (E. Z.) Collection—

150 (approx.) song texts collected in Sainte-Geneviève de Batiscan (Champlain county), and in Montreal, from singers of various districts;
80 song melodies recorded on the phonograph;
3 melodies recorded by ear;
1 folk-tale;
140 photographs of people, buildings, and technological devices;
15 pages of folk rhymes, riddles, etc.
2 specimens collected for the museum.

The Lambert (Adélard) Collection—

25 folk-tales, mostly from Berthier county;
93 song texts;
16 song melodies recorded by ear;
73 song melodies recorded on the phonograph;
12 formulæ and rhymes.

The Barbeau (C. M.) Collection—

6 song texts from Gatineau Point (Prescott).

The Cloutier (J. E. A.) Collection—

6 anecdotes from L'Islet.

The Mercure (Georges) Collection—

2 song texts;
1 anecdote.

The Cyr (Vve C.) Collection—

4 song texts.

Miscellanea: From M. Paul Beau (Montreal), 1 formula, 2 song texts, 5 photographs; from M. Régis Roy (Ottawa), 1 folk-tale; from M. Gustave Lanctot, 1 song text; from Mr. Irving Hallowell (Philadelphia), 2 French-Abenaki werewolf anecdotes.

Totals for the Year:

257 song texts;
153 song melodies recorded on the phonograph;
19 song melodies recorded by ear;
24 folk-tales;
12 anecdotes;
145 photographs;
2 specimens;
A considerable number of folk rhymes and riddles.

(English)

The J. A. Teit Collection—

91 *MS* pages of various data: nursery rhymes, riddles, omens, beliefs, recorded along Fraser river, B.C.

The Hay Shaw (Beatrice M.) Collection—

Several newspaper clippings in which the collector (from Antigonish, N.S.) has embodied data on folk beliefs, legends, and anecdotes from the Maritime Provinces.

The Sells (Moe) Collection—

8 nursery rhymes and riddles from Northants, England.

ARCHÆOLOGY

H. I. Smith reports that the archæological exhibits have remained open to the public during the year.

Accessions

The accessions to the archæological collections are as follows:

Collected by Officers of the Division

Accession 253. Archæological specimens. From British Columbia. Collected by H. I. Smith.

Accession 254. Archæological specimens. From Lawson farm site, London township, Middlesex county, Ontario. Collected by W. J. Wintemberg.

Accession 251. Archæological specimens. From Alaska and Arctic coast of Canada. Collected by Canadian Arctic Expedition. Received from Ethnological Division.

Collected by Officers of the Department

Accession 249. Archæological specimens. From Kootenay lake, B.C. Collected by M. F. Bancroft.

Gifts

Accession 248. Archæological specimens. From near headwaters of Chrome creek, tributary to Scottie creek, a branch of Bonaparte river, B.C. Presented by Mr. D. R. Cameron, District Inspector, Kamloops, B.C.

Accession 250. Archæological specimens. From Islay, Alberta. Presented by Mr. J. Dewey Soper, Guelph, Ontario.

Accession 252. Archæological specimens. From Uren village site, South Norwich township, Oxford county, Ontario. Presented by Master Gordon Uren, R. R. No. 1, Otterville, Ontario.

Accession 255. Archæological specimens. From Ireland. Presented by Dr. Hugh Fleming, Ottawa, Ontario.

Accession 256. Archæological specimens. From Ontario. Presented by Miss Faith Fyles, Ottawa, Ontario.

Purchases

Accession 256. Two celts and a combination celt-gouge. From Masson, Quebec. Purchased from Mr. George Albert Robitaille, Buckingham, Quebec.

Field Work and Research

Archæological exploration was carried on in British Columbia by H. I. Smith and in Ontario by W. J. Wintemberg.

British Columbia. The archæological exploration carried on in British Columbia by Mr. Smith was chiefly a continuation of the work begun by him last year in the Bella Coola Indian area, and was prosecuted as a part of his studies of the whole material culture of the area from ancient to recent times. A number of prehistoric shell-heaps, village sites, forts, and pictures and sculptures on rocks were located. Photographs were taken of two sculptured rock pictures on Elcho harbour. A series of such pictures on the west side of the canyon of the stream entering Bella Coola river from the south about 4 miles above its mouth were uncovered, mapped, and photographed. Plaster of paris moulds were made of eight.

Mr. Smith inspected several archæological sites near Vancouver which have been largely cleared in recent years, and found a human figure sculptured in stone in a shell-heap in the Fraser delta. This specimen is a unique variation of a type of sculptures. These have come from the area between southeastern Vancouver island and Kamloops. Only a few of these human sculptures are known to have been found. They are widely scattered, the Museums of British Columbia, England, the United States, and Germany, having specimens. This specimen is the first to come into the possession of the Canadian Government.

Ontario. An intensive exploration of the Lawson farm site near London, Ontario, was made by W. J. Wintemberg, from September 22 to November 3. This site is one of the best preserved of the fortified prehistoric village sites in the province. Moulds of the base of its palisade were found and twenty-four large boxes of material, consisting of artifacts of stone, earthenware, shell, bone and antler, pottery fragments, and human and animal bones were secured.

Office Work

In addition to Mr. Smith's work on the report of the archæological sites and evidences of the Bella Coola area, he assembled the available data and illustrations relating to the bird form in prehistoric Canadian art, the prehistoric picture writings painted on rocks in British Columbia, and the prehistoric human stone sculptures of British Columbia.

Mr. Wintemberg revised, illustrated, and greatly expanded the report on his exploration of the Eisenhauer prehistoric shell-heap on Mahone bay, Nova Scotia. He also completed the first draft of the report on his exploration of the Uren prehistoric village site in Oxford county, Ontario.

BIOLOGICAL DIVISION

R. M. Anderson, Chief of the Division, reports:

Since April, 1921, some progress has been made in the fabrication and preparation of exhibits in the museum halls, although considerable delay has been caused by the inability to obtain proper exhibition cases. Many specimens have been named for the public and information given when requested. Numbers of specimens have also been loaned to schools for the illustration of natural history work, and selected lantern slides for natural history lectures have been loaned extensively to persons engaged in educational or wild life protection and conservation work.

R. M. Anderson, zoologist (mammalia), Chief of the Biological Division, devoted considerable time to the administrative work and correspondence of the division and to the identification and study of the mammal collections. Many notes were added to the card catalogue records of bibliography and field notes on distribution and habits of the different species of Canadian mammals. Some time was devoted to editing and proofreading the scientific reports of the Canadian Arctic Expedition, 1913-18. He also represented the Department on the Advisory Board on Wild Life Protection.

Charles H. Young, senior collector-preparator, left Ottawa June 11 and did field collecting of mammals and birds at Youghall and on Miramichi Road, Gloucester county, New Brunswick, until October 7. R. M. Anderson joined Mr. Young on the 26th of July at Youghall, soon afterwards moving to camp on the Miramichi Road and working there until October 7. This work had for its object an extension of the biological reconnaissance of the Maritime Provinces, and collection of museum material from regions not well represented in the national collections.

P. A. Taverner, ornithologist, left Ottawa May 14, 1921, and worked at Cypress Lake, Saskatchewan, until June 13, and around Eastend, Saskatchewan, until June 21. On June 27 he joined Mr. Hoyes Lloyd, supervisor of migratory birds protection, and together they worked through southern and west central Manitoba until August 29. The biological reconnaissance was continued in preparation of a proposed work on the "Birds of Western Canada", for the collection of museum material from new districts; and to assist in the investigation of the bird life in certain forest reserves and bird sanctuaries in the Prairie Provinces. Hamilton M. Laing, temporary assistant to Mr. Taverner, worked with him at Cypress Lake and Eastend, Saskatchewan, proceeding to Oak Lake, Manitoba, and remaining at Oak Lake until the end of October.

C. L. Patch, chief taxidermist and herpetologist; D. Blakely, taxidermist; and Claude E. Johnson, artist, continued the mounting of individual specimens and group preparations; old specimens have been cleaned and remade, and large skins tanned by J. E. Perron. Jos. Rochon and D. MacDonald have been engaged in cleaning and mounting osteological material. Some local field work has been done around Ottawa, collecting local material and accessories for habitat groups in the Museum.

The mammal accessions to the Museum during the year numbered 565, and bird accessions 1,300 specimens.

Work in the botanical section was handicapped early in the year on account of no botanist being regularly at work since the death of James M. Macoun in 1920; although Mr. M. O. Malte, Dominion agrostologist, of the Department of Agriculture, had been appointed honorary curator of the National Herbarium and had put in as much time as could be spared from his duties at the Experimental Farm. Mr. Malte was later appointed Chief Botanist, National Herbarium, and took over the duties of the position November 1, 1921. He has resumed the exchange of duplicate herbarium sheets which was interrupted by the death of Mr. Macoun, card catalogued the books and pamphlet publications, and done considerable work in editing and proofreading several important botanical publications. He also took up the final work on the "Flora of the Ottawa Region," the material and manuscript of which had been accumulating for years under the hands of the late Professor John Macoun and James M. Macoun and it is hoped that the work will be brought into shape for printing during the ensuing year.

The most important botanical publications issued during the year were:

"A Botanical Exploration of the North Shore of the Gulf of St. Lawrence," by Harold St. John.

"Report of the Canadian Arctic Expedition, 1913-18, Vascular Plants," Volume V, Part A, by James M. Macoun and Theo. Holm.

Ibid. Volume V, Part B. "Contributions to the Morphology, Synonymy, and Geographical Distribution of Arctic Plants," by Theo. Holm.

Many botanists and botanical students have availed themselves of the herbarium for purposes of study and for the comparison of material, and many specimens have been sent in and determined. Although the division has neither the staff nor facilities for the determination of all common collections that may be submitted, it is glad to examine and compare specimens and discuss technical points with curators of local herbaria, colleges, experiment stations, and advanced collectors.

Plants received, outside of collections by staff:

	Sheets
New York Botanical Garden	1,195
Gray Herbarium, Cambridge	360
State University of New York, Albany	550
C. H. Morse, collected by W. D. Cram	127
George S. Hume	34
Miss H. Potter (from Yukon)	14
	2,270

MINES BRANCH

John McLeish, Director

FUNCTION AND ORGANIZATION

The general scope of the Mines Branch function to which particular attention has so far been given, has been the collecting of information and the conducting of investigations designed to promote the efficient development and utilization of the mineral resources. This is a broad field of activity, extending from the commercial development of mineral deposits to the production and utilization of the marketable products.

The plan of the work has been to collect statistics of mineral production (a duty recently transferred to the Dominion Bureau of Statistics); to study and collect information regarding the mining industry in all its phases, including extent of resources, methods of mining, processes of recovering marketable products, the nature and character, chemical and physical, of the ores and minerals, intermediate and final marketable products, the uses to which products are put, prices, markets, marketing conditions, and other related economic facts.

Chemical, testing, and experimental laboratories have been established to make studies and investigations respecting ore dressing and metallurgy; the fuels, coal, peat, petroleum, gas, and oil-shales; clays, ceramic materials, refractory materials, structural materials, and the various rocks, sand, and gravels used for road building; all with a view to determining the character of products, testing products and processes, determining the most suitable processes to employ to secure results desired—whether in the production or in the utilization of mine products, the prevention of waste, and the protection of life.

The work, while primarily investigative, has involved the installation of equipment that enables the Branch to furnish a great deal of assistance to other departments in the making of chemical and physical examinations and tests.

To the above investigative function is added the administration of the Dominion of Canada Assay Office at Vancouver, B.C.

The growth of the organization for carrying on the work of the Branch has not been so rapid as the importance of developing the natural resources of the country would seem to require. In fact, it has been very adversely affected during recent years by resignations from the technical staff, and the Branch has been quite unable to meet all the many demands made upon it for information and investigations.

It is proposed that the work be continued under the following organization:

Administrative:

Secretarial
Library
Draughting Division
Dominion of Canada Assay Office, Vancouver, B.C.

Investigative:

Mineral Resources Division
Ore Dressing and Metallurgical Division
Fuels and Fuel Testing Division
Ceramics and Road Materials Division
Chemical Laboratory Division

Under the Division of Mineral Resources will be included the investigation of mineral resources and their technology, production, uses, markets, marketing conditions, formerly undertaken in the Metal Mines, Non-Metalliferous Mines, and Mineral Resources and Statistics Divisions. There is a very great demand for this information.

The Ore Dressing and Metallurgical Division, Fuels and Fuel Testing Division, Ceramics and Road Materials Divisions, will be charged primarily with laboratory testing and research investigations on ores and minerals and on processes for their treatment and recovery; on mineral products, and on methods and purposes of their utilization.

There is great need of and opportunity for securing exceedingly valuable results from the study and investigation of mining and marketing conditions. The natural mineral resources of Canada require to be administered under laws and regulations that will best serve the public interest. Production should be made in a manner and under conditions that will give a maximum recovery of valuable constituents with a maximum protection of health and life, and of associated mineral resources not being immediately exploited. Such assistance as is properly within the function of Government to grant should be given, to facilitate the development of and supplying of markets both at home and abroad for those mineral resources that are susceptible of economic and profitable exploitation.

At the present time Canada, notwithstanding apparent enormous mineral resources, is a very large importer of certain mineral products, and although economic conditions play a very important part in this international trade in products of the mine, nevertheless, much of it is due to a lack of knowledge of our own resources and of the means to make them marketable. This applies with particular force to our great and varied resources in non-metallic products.

REVIEW OF ACTIVITIES

Investigations undertaken during the year, other than those of routine character, were mainly continuation of work in progress. Investigations of mineral resources and their technology were made with particular reference to iron, molybdenum, mineral pigments (ochres), alkali deposits (sodium and magnesium sulphates), soapstone and talc, and bituminous shales of Manitoba and Saskatchewan. These, and the laboratory tests made, are referred to in the following statements.

MINERAL RESOURCES AND TECHNOLOGY

CHEMICAL AND METALLURGICAL INDUSTRIES INVESTIGATION

A. W. G. Wilson, Chief of the Metal Mines Division, has been engaged at intervals throughout the year in the compilation of his "Report on the Development of Chemical and Metallurgical Industries in Canada." About one-half the time of this officer has been occupied in the preparation of memoranda and in replying to inquiries relating to chemical and metallurgical industries. A special report was prepared on the Malagash salt area. Mr. Wilson served, also, on several inter-departmental committees.

IRON ORES AND THE IRON INDUSTRY

A. H. A. Robinson spent the winter months in completing a report on the titaniferous iron ore resources of Canada. Two months were spent in the field, obtaining information on the iron industry of Canada.

MOLYBDENUM

V. Eardley-Wilmot was engaged throughout the year in the preparation of a monograph on molybdenum.

MINERAL PIGMENTS

The investigation of the mineral pigment deposits of eastern Canada was continued by H. Frechette. The field work in 1921 was entirely in the province of Ontario; Quebec and the Maritime Provinces having been covered previously. Attention was confined to deposits lying within those parts of eastern Ontario served by easy transportation.

Almost all the ochre deposits seen are too small to be prospective producers, though some have, in the past, produced a limited amount of pigment. Most of the deposits have resulted from the oxidizing of chalybeate waters issuing from rock formation, whereas the larger ochre deposits of Quebec owe their origin to springs issuing from immense sand fields. In the county of Halton, certain clays have in the past been used for paint making. With an increased demand for low grade material they may again find a market as pigment for oilcloth manufacture or for some such purpose. Aside from these clays there is small promise of a mineral pigment industry in eastern Ontario.

SODIUM AND MAGNESIUM SULPHATE DEPOSITS

The investigation of the alkali deposits of western Canada was commenced by L. H. Cole. The field work in 1921 was confined mainly to Saskatchewan, with only preliminary examinations of a few of the larger deposits in Alberta. Attention was centred primarily on some of the larger typical deposits situated convenient to transportation, and on several smaller deposits which showed peculiarities varying somewhat from the general type.

Natural occurrences of soluble mineral salts are known in Manitoba, Saskatchewan, Alberta, and British Columbia, either in the form of bedded deposits, or as brines. Some of these deposits are probably of sufficient size to warrant commercial development, provided advantageous freight rates and a sufficient market can be obtained.

The salts in these deposits consist chiefly of mixtures of hydrous sodium and magnesium sulphates in varying proportions, with, generally, small quantities of sodium chloride and possibly other salts such as sodium carbonate, etc.

These deposits vary little in character although the percentage of the different salts varies in different localities. The deposits range from a few acres to many acres in extent, and in thickness from a few inches to 15 feet or more. The salts are generally found interbedded or mixed with calcareous mud or peaty material, and in very few instances are the deposits in a form pure enough to be sold in their raw state. The mud beds also contain numerous crystals of the alkali salts.

OIL-SHALES IN MANITOBA AND SASKATCHEWAN

S. C. Ells examined certain Cretaceous shales in Manitoba and Saskatchewan to determine their value as a possible source of crude petroleum. The results of this investigation were embodied in a bulletin (Memorandum Series, No. 3), issued in December, 1921.

BARIUM, STRONTIUM, TALC, AND SOAPSTONE

H. S. Spence continued his investigation of non-metallic minerals. During the year a report entitled "Barium and Strontium in Canada" was completed and sent to press. The field work consisted of the examination of deposits of talc and soap-

stone in Ontario and Quebec, in order to secure additional data for a report now being prepared. A number of deposits of non-metallic minerals in eastern Ontario were also examined.

MINERAL PRODUCTION RECORDS AND REPORTS

A. Buisson and J. M. Casey collected statistics of mineral production in Canada covering the calendar year 1920, and prepared for publication the "Annual Report on Mineral Production in Canada during the Calendar Year 1920," a preliminary report in respect to which had already been issued. In preparing this record for 1920, the Mines Branch was associated with the Dominion Bureau of Statistics which will in future attend to this work.

Mr. Buisson completed the more detailed report on the "Production of Copper, Gold, Lead, Nickel, Silver, Zinc, and other Metals in Canada, 1920," and revised the lists of "Metal Mines" and "Metallurgical Works." Mr. Casey completed the detailed report on "Production of Coal and Coke in Canada," and revised and prepared for printing the various lists of non-metallic mines and quarry operators.

MINERAL RESOURCES INDEX INVENTORY

Mr. Buisson's activities have been mainly devoted to the development of the Mineral Resources Index Inventory referred to in previous years, and more completely described in the Report of the Munitions Resources Commission. The great value of such an Index Inventory has been demonstrated, by experience, but to build it up will require a larger technical staff.

ORE DRESSING AND METALLURGICAL DIVISION

W. B. Timm, Chief of the Division, reports very satisfactory progress has been made, considering the limited staff of technologists employed. The technical staff, depleted during 1919 by resignations, was augmented by the temporary appointment of C. S. Parsons as Engineer, Grade II, on February 1, 1921. On August 1, 1921, he received permanent appointment. On July 11, 1921, B. P. Coyne was appointed temporarily to the position of Assistant Chemist.

The work of the division has been centred, mainly, on methods of treating Canadian ores. For this purpose well-equipped experimental and chemical laboratories are maintained for testing on both a laboratory and a commercial scale.

Mr. Timm visited the Eastern Townships, Quebec, in connexion with the milling of asbestos rock.

INVESTIGATIONS CONDUCTED DURING 1921

Shipments of gold ores from Rice Lake district, and from Herb Lake district, were received. The test work on these ores, which contain metallic sulphides such as chalcopyrite, arsenopyrite, pyrite, sphalerite, and galena, was conducted by R. K. Carnochan.

An investigation was made by R. K. Carnochan on the milling of two types of asbestos rock from East Broughton and Black Lake, Que.; and on the concentration of garnet from Ontario.

C. S. Parsons, assisted by R. J. Traill, conducted an investigation on the concentration of the lead carbonate and zinc-lead sulphide ores of Kimberley, B.C.; and with R. K. Carnochan made a series of comparative tests on the concentration of the low-grade copper ores of Hidden creek, Anyox, B.C.

Investigations were carried on by Mr. Parsons (assisted by R. J. Traill) on the concentration of the Flin-Flon sulphide ore, and a further investigation is being made on the disseminated ore from the same ore-body; (assisted by B. P. Coyne) on the treatment of the complex zinc ores of the Stirling mine, Cape Breton, N.S., and on the concentration by tabling and flotation of the lower-grade copper-nickel ores of the Sudbury district. H. C. Mabee is conducting the work in connexion with the precious metal values in these ores.

Mr. Parsons also completed an investigation on the recovery of brass from foundry refuse.

An investigation is being conducted to stimulate the use by operating companies of oils and other flotation re-agents manufactured, or which could be manufactured, in Canada, if markets were available.

R. K. Carnochan investigated the concentration of the radioactive mineral euxenite, and is working on the recovery of the values in a gold ore from Arrowhead, B.C.

Mr. Parsons also investigated the concentration of several shipments of molybdenite and graphite ores.

H. C. Mabee worked on the recovery of the metals of the platinum group from placer concentrates of the Cariboo district, B.C., and is working on the precious metal values in the pyrrhotite ores of Canada.

ADDITIONAL EQUIPMENT

During the year the following was added to the equipment of the laboratories:

A Standard Asbestos Testing Machine.
A Dorr Simplex Classifier, with bowl attachment, specially built so it can be operated as a simplex classifier, or as a bowl classifier.
A Davis Magnetic Log Washer.
A Four-unit Muffle Furnace.

The portion of the chemical laboratories destroyed by fire in the previous year was rebuilt. The chemical work which had been carried on at the Mines Branch laboratories, Sussex street, was transferred back to the laboratories of the division in February.

FUELS AND FUEL TESTING DIVISION

B. F. Haanel, Chief of the Division, reports that the division was still handicapped by depletions in the staff, which took place during the year 1920-21. Three of the vacancies in the chemical staff were filled early in the year, but the positions of Chief Engineering Chemist and Technical Engineer, were still vacant at the close of the fiscal year.

INVESTIGATIONS PLANNED

The appropriations for 1921-22 provided for the completion of the investigation of Canadian oil-shales and peat for the recovery of oil; and the carbonization of Canadian lignites and peat. An investigation in regard to the efficient burning of Canadian fuels has been commenced, but is proceeding slowly owing to the limited staff available. It is important that this investigation be proceeded with vigorously, so that Canadian fuels may be used instead of imported fuels.

Funds at the disposal of the division for collecting information regarding the use of fuels for power and heating purposes can be satisfactorily employed only when the present vacancies are filled and additional technical staff secured.

INVESTIGATIONS AND EXAMINATIONS MADE BY THE CHIEF OF THE DIVISION

B. F. Haanel, in addition to his regular duties, visited laboratories in the United States where investigations were being conducted on the distillation of oil-shales and coal. He superintended a test with the Ryan Process on a sample of oil-shale obtained from Albert Mines, N.B. He interviewed several chemists and engineers who had processes for recovering oil from shale, and he made trips to Petrolia and Edmonton to examine processes for extracting bitumen from the tar sands of Alberta. In September he attended the meeting of the Canadian Mining Institute at Edmonton and on his return journey to Ottawa visited the briquetting plant erected by the Lignite Utilization Board at Bienfait. He also conducted all the secretarial work of the Peat Committee.

E. S. Malloch has performed the duties of Technical Engineer since the resignation of John Blizard. In addition to his routine work he has prepared for publication John Blizard's report on the "Preparation, Transportation, and Combustion of Powdered Coal," and the report entitled "Gas Producer Trials with Alberta Coals," by John Blizard and E. S. Malloch. He conducted a series of tests on a small domestic hot-water heater designed for burning lignite coal, and is investigating the combustion of fuels in a standard domestic hot-water boiler.

CHEMICAL LABORATORIES

J. H. H. Nicolls, Acting Chief Engineering Chemist, reports that over two hundred samples of fuels were analysed for the various departments of the Government and for private individuals. Further progress was made with the laboratory scale investigations on carbonization of lignite and peat by H. Kohl and others, and the work on oil-shale has been proceeding satisfactorily.

SPECIAL INVESTIGATIONS

Work has been begun on the investigation of the briquetting of peat when mixed with a bituminous slack and anthracite dust. P. V. Rosewarne carried out an investigation concerning the lubricating qualities of cod liver oil as compared with those of castor oil.

NEW EQUIPMENT

B. F. Haanel obtained, free of charge, an equipment for burning powdered coal, which will be installed early in April, 1922.

CERAMIC DIVISION

The work of the Ceramic Division for the past season consisted as usual in the investigation of the raw materials used in the ceramic industries.

The field work consisted in gathering data for a bulletin on the clay and shale deposits of Ontario, and a visit to the Grand Lake coal area in New Brunswick to sample clays in the coal mines.

A large number of samples of clays and shales were tested for people in various parts of the Dominion, and an important series of successful tests were run to determine the cause of, and to correct a bad case of, scumming submitted for investigation by one of the large brick manufacturing plants.

On October 1, 1921, Mr. Keele accepted transfer to the classification of geologist, and during the last half of the fiscal year Howells Frechette has been acting as Chief of the Ceramic and Road Materials Division, and conducting or supervising the laboratory work.

ROAD MATERIALS DIVISION

The work on road materials, carried on by Henri Gauthier, in charge, and R. H. Picher, included the examining and sampling of a number of gravel deposits and rock quarries along the Ottawa-Pointe Fortune highway in Ontario, and the continuation of a road material survey in Rocky Mountains park, B.C., in connexion with the construction of automobile roads by the Parks Branch of the Department of the Interior.

The first of these investigations, undertaken at the request of the Ontario Highways Department, was limited to the examination of certain deposits selected by the Resident Engineer in charge of the highway, about a week's time only being available for the field study. In the Rocky Mountains Park investigation, materials along the entire Banff-Lake Louise road, a distance of 35 miles, and along approximately 50 miles of the Castle-Windermere road, were examined. There still remain about 25 miles of this road to be surveyed for road materials. With this work accomplished, complete information regarding the available road materials for these two highways will be at the disposal of the engineers and contractors in charge of their surfacing and maintenance.

The carrying on of the field work of these investigations was very greatly facilitated by assistance received from Messrs. R. S. Stronach, Superintendent, Rocky Mountains park, and J. M. Wardle, Chief Highway Engineer, and their assistants.

A special memorandum was prepared by Mr. Gauthier for the information of Mr. A. W. Campbell, Federal Commissioner of Highways, dealing with the comparative value of the various classes of road-building rock as surfacing material.

A number of samples of road stone and gravel, other than those collected by the officers of the division, were tested and reported upon.

An experimental abrasion test on concrete cylinders was undertaken, at the request of the Department of Public Works, Ottawa, to secure information on the comparative resistance to wear of concrete mixtures.

CHEMISTRY DIVISION

The work of the Chemical Division, under the direction of F. G. Wait, Chief of the Division, has been carried on along two lines—special investigations, and regular routine—in the course of which 754 samples have been dealt with.

H. A. Leverin has performed a large number of analyses of a routine character. During the summer months, his services were loaned to the Peat Committee and his whole time given to that work.

R. T. Elworthy has been engaged in an investigation of the possibility of oxidation of natural gas; and of problems submitted by the Air Board—including a study of dressings for aeroplane fabric, and of glues—as well as performing analyses of waters encountered in the deep borings for oil and gas in Saskatchewan and Alberta.

E. A. Thompson, assisted by A. Sadler, has been engaged in an investigation of the colloidal clay—bentonite. Mr. Sadler has, in addition, made several partial analyses, and assays.

James Moran has been in charge of the analyses of mine air samples.

DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

George Middleton, manager of the office, reports the receipt of deposits during the calendar year ended December 31, 1921, as follows:

There has been an increase in the number and value of gold bullion deposits as compared with the previous year, the figures being 1,460 deposits of a total value

of $2,834,499.61 during the year just ended, as against 1,346 deposits of a total value of $2,499,174.41 during the year 1920.

A total of 1,514 meltings and 1,514 assays (in quadruplicate) was required in connexion with the purchase and disposal of the bullion, including the melting into large bars of the smaller deposits after purchase, and the assaying of same prior to shipment to the Royal Mint, Ottawa.

The aggregate weight of the gold bullion deposits before melting was 163,070.56 troy ounces and after melting 160,826.37 troy ounces, showing a loss in melting of 1.3762 per cent. The loss in weight by assaying was 22.89 troy ounces, making the weight of bullion after melting and assaying 160,803.48 troy ounces, the average fineness of same being 850·5 parts per thousand gold and 121 silver.

The net value of the gold and silver contained in deposits was $2,834,499.61, received from the undermentioned sources:

Source	Number of deposits	Weight		Net value
		Before melting and assaying	After melting and assaying	
		(troy ozs.)	(troy ozs.)	$ cts.
British Columbia	958	80,772·93	79,336·15	1,492,970 45
Yukon Territory	495	82,219·92	81,393·04	1,340,224 97
Alberta	2	19·96	19·04	345 14
Alaska	5	57·75	55·25	959 05
	1,460	163,070·56	160,803·48	2,834,499 61

DRAUGHTING DIVISION

H. E. Baine, Chief Draughtsman, reports:

Fifteen maps have been compiled and drawn for photolithography, and are now ready for publication. They are listed below without publication numbers. Four maps are now in preparation; none is at present in the hands of the King's Printer.

About eight hundred index maps were prepared for the Division of Mineral Resources and Statistics.

One hundred and forty drawings, charts, flow-sheets, etc., were made for the illustration of various reports.

About four hundred negatives and black and white prints were made from the photostat machine, and about two hundred and fifty prints were made from the blue print machine.

Four hundred half-tone blocks and zinc cuts were sent out, received, and filed during the year.

Maps Ready for Publication

Structural materials along the St. Lawrence river, between Prescott, Ont., and Lachine, Que., in three sheets; scale, 1 mile to 1 inch.
- Morrisburg sheet.
- Cornwall sheet.
- Valleyfield sheet.

Bituminous sands, northern Alberta:
- Index map showing provisional classification of principal outcrops of bituminous sand in northern Alberta.
- Hangingstone-Horse River sheet
- Clearwater River sheet
- Christina River sheet — Drawn on a scale of 1,000 feet to 1 inch.
- Steepbank River sheet — To be published on a scale of 2,000 feet to 1 inch.
- Moose River sheet
- McKay River sheet

Map showing provisional classification of principal outcrops of bituminous sand in northern Alberta (4 sheets); scale, 40 chains to 1 inch.
Map showing provisional classification of principal outcrops of bituminous sand in northern Alberta; scale, 5 miles to 1 inch.
Sketch map of Lake Ainslie district, Cape Breton, Nova Scotia, showing location of barytes deposits; scale, 16 miles to 1 inch.
Map showing position of outcrops of Cretaceous shales, sampled during the year 1921, in Manitoba and Saskatchewan; scale, 35 miles to 1 inch.
Map showing position of outcrops of Cretaceous shales, sampled during year 1921, in Pasquia Forest reserve, Saskatchewan; scale, 35 miles to 1 inch.

In Preparation

Map showing road materials available for highway construction in Soulanges and Vaudreuil counties, Quebec; scale, 2 miles to 1 inch.
Map showing road materials available for highway construction between Prescott and Gananoque, Ontario; scale, 2 miles to 1 inch.
Map showing road materials available for highway construction between Gananoque and Napanee, Ontario; scale, 2 miles to 1 inch.
Map showing road materials available for highway construction between Napanee and Port Hope, Ontario; scale, 2 miles to 1 inch.

LIBRARY

Mrs. O. P. R. Ogilvie, Librarian, reports that the Mines Branch Library has grown very appreciably during 1921. New filing cabinets have been added to accommodate the expansion of the card catalogue.

An original extension of the Dewey Classification System has been completed which, in application, has proved most valuable to the specific requirements of this library.

ACCESSIONS, 1921

Books (by gift)	9
Books (by purchase)	244
Books (bound)	107
Canadian government documents	538
Foreign government documents	1,159
Scientific societies, bulletins, proceedings, and transactions	511
Pamphlets	217
Trades catalogues	143
Maps	87
Total accessions	3,015

EXPLOSIVES DIVISION

Lt.-Col. G. Ogilvie, Chief Inspector of Explosives

Satisfactory progress has been made in this the second year of operation of the Explosives Act, in the promotion of an understanding of its provisions as affecting all who have occasion to store or use explosives, and in the enforcement of the observance of the regulations made under the Act.

Four new factories have been established and licensed, and two others have ceased operation, bringing the total of licensed factories in Canada at the end of the financial year to nineteen. Many improvements have been effected in the factories previously established, to facilitate their operation in accordance with the regulations. In one case the licence for a factory was suspended pending reorganization, this action arising from the failure of the management to conduct the work of the factory in compliance with the regulations.

There are in effect ninety-one licences or continuing certificates covering the use of permanent magazines, and one hundred and three licences for temporary magazines. The issue of these licences, which apply to magazines previously in operation, has in most cases been conditional on the carrying out of certain specified improvements in construction, or on limitation of the quantity and nature of explosives to be stored, as have been deemed necessary in the interest of the public safety.

The investigations which have been made into the conditions of storage have, in several cases, resulted in the condemnation of the magazine in use, and either a new magazine built, or proper disposal otherwise made of the explosives.

In the inspection of these magazines valuable assistance has been given by the Royal Canadian Mounted Police between whom and this staff close co-operation has been maintained. The regulation of the storage of explosives in small quantities in premises which do not require to be licensed has been made possible by the activities of that force whose members have visited approximately 1,600 such places, generally twice, in the course of the year.

Special consideration has been given to the special circumstances attending the keeping of explosives by persons engaged in certain industries, as in logging or farming, and steps taken to explain the requirements of the regulations to them. The purpose of the Act in this respect has been well understood and appreciated, and with the co-operation of the companies, farmers institutes, and other bodies concerned, it has been possible to satisfactorily regulate such storage in accordance with the Act, while causing the minimum inconvenience or expense to the operators.

With regard to the application of the Act in relation to the storage of explosives in general, it is to be observed that the improvement in the conditions of storage which has been, and is being, effected is not confined to that which could reasonably be expected as a result only of the application of regulations enforced by visits of inspection. The attention so called to the importance of the observance of good practice in the interests of the safety of employees and the public has, with comparatively few exceptions, resulted in owners exercising a closer supervision on such matters than was formerly common.

As was to be expected, greater difficulty has been experienced in obtaining satisfactory results in the regulation of storage of explosives by construction parties than in the case of those persons who have permanent locations. This is being over-

come as contractors become known, and with the assistance rendered by several public bodies in giving advice of contracts placed, and by the Royal Canadian Mounted Police in locating work parties.

Prosecutions were made in twelve cases, during the financial year, for violation of the regulations and convictions obtained in all cases.

The greater number of importation permits issued were in respect to fireworks. The difficulty in obtaining adequate declarations of Chinese fireworks, which necessitated the exclusion of all save certain defined small natures, has been largely overcome by the assistance rendered by Customs Brokers, and it has been possible to authorize a considerable variety of these fireworks while ensuring the non-admittance of those of an undesirable character.

It has been found necessary, by reason of their unsuitable composition, to exclude certain of the retail fireworks formerly supplied by manufacturers in the United States.

Ninety-six accidents with explosives were traced in 1921. These involved the death of twenty-three persons and injury to ninety others. The circumstances and causes of these, as far as can be determined, are summarized in the Annual Report of the Explosives Division. It is noteworthy that these include no fewer than twenty-one, whereby two persons were killed and thirty injured, which were brought about by persons playing with explosives which, if properly kept, should in the great majority of the cases, never have fallen into the hands of the persons, generally children, who obtained them.

The staff of the division was increased by the appointment of Lt.-Colonel F. E. Leach as Inspector of Explosives on July 28. Lt.-Colonel Leach has since been employed in western Canada. Mr. M. C. Fletcher was appointed to the position of chemist on December 1, 1921.

EDITORIAL DIVISION

William McInnes, Editor-in-Chief

The Department issues from time to time, as they can be prepared, reports, memoirs, and bulletins from its various divisions. Memoirs and bulletins of the Geological Survey and Victoria Memorial Museum are issued under the supervision of F. Nicolas, Editor: reports of the Mines Branch, under the supervision of Samuel Groves, Editor. In addition to the reports issued in English, many are issued in French, under the supervision of C. E. Rivier and E. P. Lévesque, Mr. Paradis, Head Translator, being absent through illness.

The following lists include the reports published by the Department from January 1, 1921, to March 31, 1922; and the French publications distributed during that period.

DEPARTMENT OF MINES

English Publications

1903. *Report of the Department of Mines for the Fiscal Year Ending March 31, 1921;* 47 pages; 4,000 copies; published, November 30, 1921.

GEOLOGICAL SURVEY

English Publications

1713. Memoir 108. Geological Series 92, *The Mackenzie River Basin* (revised edition)—by Charles Camsell and Wyatt Malcolm; 151 pages, 14 plates, 1 figure, 1 map; 4,000 copies; published April 26, 1921.

1819. Memoir 118. Geological Series 100, *Mineral Deposits Between Lillooet and Prince George, B.C.*—by Leopold Reinecke; 129 pages, 17 plates, 18 figures; 2,500 copies; published January 6, 1921.

1820. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1919, Part E;* 48 pages, 10 figures, 7 maps; 3,000 copies; published February 2, 1921.

1821. Memoir 119. Geological Series 101, *The Reed-Wekusko Map-area, Northern Alberta*—by F. J. Alcock; 47 pages, 6 plates, 2 maps; 3,000 copies; published January 18, 1921.

1824. Memoir 120. Geological Series 102, *The Hadrosaur Edmontosaurus from the Upper Cretaceous of Alberta*—by Lawrence M. Lambe; 79 pages, 39 figures; 3,500 copies; published January 5, 1921.

1825. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1919, Part F;* 25 pages, 4 maps; 3,000 copies; published January 28, 1921.

1832. Museum Bulletin No. 31. Geological Series 38, *A Contribution to the Description of the Fauna of the Trenton Group*—by P. E. Raymond; 64 pages, 11 plates; 2,000 copies; published February 23, 1921.

1834. Memoir 122. Geological Series 104, *Sheep River Gas and Oil Field, Alberta*—by S. E. Slipper; 46 pages, 8 plates, 4 figures, 3 maps; 2,500 copies; published April 8, 1921.

1837. Memoir 123. Geological Series 105, *Sixtymile and Ladue Rivers Area, Yukon*—by W. E. Cockfield; 60 pages, 6 plates, 1 map; 2,750 copies; published March 4, 1921.

1840. Bulletin No. 32. Geological Series 39, *Inyoite from New Brunswick*—by Eugène Poitevin and H. V. Ellsworth; 21 pages, 3 plates, 10 figures; 1,800 copies; published May 21, 1921.

1862. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1919, Part A;* 19 pages; 3,000 copies; published May 4, 1921.

1863. Memoir 124. Geological Series 106, *Northeastern Part of Labrador, and New Quebec*—by A. P. Coleman; 68 pages, 10 plates, 3 maps; 2,500 copies; published July 20, 1921.

1864. Bulletin No. 33. Geological Series 40, *Faunal and Sediment Variation in the Anticosti Sequence*—by W. H. Twenhofel; *New Species of Devonian Crinoidea from Northern Canada*—by Frank Springer; *The Range of Certain Lower Ordovician Faunas of the Ottawa Valley with Descriptions of Some New Species*—by Alice E. Wilson; *The Fossil Molluscan Faunas of the Marl Deposits of the Ottawa District*—by E. J. Whittaker; *Two New North American Cycadeoids*—by G. R. Wieland; 109 pages, 12 plates, 8 figures; 2,250 copies; published October 13, 1921.

1866. Memoir 129. Geological Series 110, *Geology of the Moncton Map-area*—by W. J. Wright; 69 pages, 7 plates, 3 figures, 4 maps; 2,500 copies; published March 2, 1922.

1867. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1920, Part C;* 32 pages, 5 figures, 4 maps; 4,000 copies; published July 15, 1921.

1868. Memoir 125. Geological Series 107, *Sedimentation of the Fraser River Delta*—by W. A. Johnston; 46 pages, 4 maps, 5 diagrams; 2,500 copies; published September 10, 1921.

1869. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1920, Part A;* 106 pages, 8 figures, 10 maps; 4,000 copies; published, July 27, 1921.

1870. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1920, Part E;* 20 pages; 3,000 copies; published June 24, 1921.

1874. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1920, Part B;* 67 pages, 5 plates, 10 figures, 2 maps; 5,000 copies; published June 8, 1921.

1881. *Summary Report of the Geological Survey, Department of Mines, for the Calendar Year 1920, Part D;* 87 pages, 14 figures, 1 map; 3,500 copies; published September 30, 1921.

1883. *Economic Minerals of Canada.* Pamphlet on—by Wyatt Malcolm, for distribution to the Seventh National Exhibition of Chemical Industry, New York; 34 pages, 1 plate; 10,000 copies; published September 6, 1921.

1900. Memoir 127. Geological Series 105, *Beauceville Map-area, Quebec*—by B. R. MacKay; 105 pages, 13 plates, 7 figures, 2 maps; 2,500 copies; published December 31, 1921.

1904. Memoir 128. Geological Series 109, *Winnipegosis and Upper Whitemouth River Areas, Manitoba;* Pleistocene and Recent Deposits—by W. A. Johnston; 42 pages, 2 figures, 2 maps; 2,500 copies; published, December 23, 1921.

Report of the Canadian Arctic Expedition, 1913-1918[1]—

Volume III: *Insects*, Part K, *Insect Life on the Western Arctic Coast of America*—by Frits Jobansen; 61 pages, 10 plates, 1 figure; 3,000 copies; published November 7, 1921.

Volume IV: *Botany*, Part E, *Mosses*—by R. S. Williams; 15 pages, 1 plate; 3,500 copies; published February 8, 1921.

Volume V: *Botany*, Part A, *Vascular Plants*—by James M. Macoun and Theo. Holm; 51 pages, 13 plates; 3,500 copies; published October 14, 1921.

Volume V: *Botany*, Part B, *Contributions to the Morphology, Synonymy, and Geographical Distribution of Arctic Plants*—by Theo. Holm; 139 pages, 6 plates, 18 figures; 3,500 copies; published February 10, 1921.

Drillers' Notebook for the Borings Division, Geological Survey; published August 31, 1921.

A Supplementary Study of Panoplosaurus Mirus (Royal Society paper)—by C. M. Sternberg; reprints from the University of Toronto Press, 250 copies; published March 28, 1922.

French Translations

1564. Mémoire 104, n° 3 série biologique. *Les oiseaux de l'est du Canada*—by P. A. Taverner; 307 pages, 50 coloured plates, 68 figures; 1,500 copies; published January 6, 1921.

1818. Mémoire 109, n° 94 série géologique, *Le bassin des rivières Harricanaw et Turgeon dans le nord du Québec*—by T. L. Tanton; 92 pages, 9 plates, 2 figures, 1 map; 1,000 copies; published January 7, 1921.

1871. *Rapport sommaire de la Commission géologique du Ministère des Mines, pour l'année civile 1919, Partie A;* 19 pages; 800 copies; published July 27, 1921.

MINES BRANCH

English Publications

37. *Catalogue of Mines Branch Publications, 11th edition;* 35 pages, 2,000 copies; published September 15, 1921.

Price list of Mines Branch Publications; 7 pages; 500 copies; published October 28, 1921.

396. *Phosphate in Canada.* Report on—by Hugh S. Spence; 156 pages, 32 plates, 12 figures 13 maps; 5,000 copies; published February 11, 1921.

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[1] These reports were published under the supervision of R. M. Anderson, Chief, Biological Division.

SESSIONAL PAPER No. 15

542. *Summary Report of the Mines Branch, Department of Mines, for the Calendar Year 1919;* 183 pages, 2 figures, 5 diagrams; 2,500 copies; published January 17, 1921.

545. *The Mineral Production of Canada, for the Calendar Year 1919.* Annual report on— by John McLeish; 82 pages, 4,000 copies; published February 21, 1921.

547. *Production of Copper, Gold, Lead, Nickel, Silver, Zinc, and other Metals in Canada during the Calendar Year 1919.* Report on—by John McLeish; 76 pages, 3,000 copies; published April 11, 1921.

548. *Production of Coal and Coke in Canada During the Calendar Year 1919.* Report on— by John McLeish; 39 pages; 3,000 copies; published April 1, 1921.

554. *The Mineral Production of Canada for the Calendar Year 1920.* Preliminary report on—by John McLeish; 24 pages; 6,000 copies; published March 1, 1921.

564. *The Preparation, Transportation, and Combustion of Powdered Coal*—by John Blizard; 131 pages, 3 plates, 39 figures; 4,000 copies; published November 3, 1921.

565. *Gas Producer Trials with Alberta Coals.* Bulletin No. 33—by John Blizard and E. S. Malloch; 40 pages, 1 figure, 18 charts; 4,000 copies; published November 24, 1921.

566. *Production of Copper, Gold, Lead, Nickel, Silver, Zinc, and Other Metals in Canada During the Calendar Year 1920.* Report on—by John McLeish; 76 pages; 3,000 copies; published December 17, 1921.

567. *Production of Coal and Coke in Canada During the Calendar Year 1920.* Report on—by John McLeish; 36 pages; 3,000 copies; published December 17, 1921.

568. *The Mineral Production of Canada During the Calendar Year 1920.* Annual report on— by John McLeish; 80 pages; 4,500 copies; published January 14, 1922.

574. *Summary Report of Investigations Made by the Mines Branch, Department of Mines, During the Calendar Year Ending December 31, 1920;* 87 pages, 8 figures; 3,000 copies; published March 6, 1922.

Note.—The following parts of the Summary Report were issued separately:

575. *Mineral Resources and Technology;* 22 pages, 1 figure; 1,000 copies; published March 31, 1922.

576. *Ore Dressing and Metallurgy;* 15 pages; 500 copies; published March 31, 1922.

577. *Fuels and Fuel Testing;* 30 pages; 1,000 copies; published March 31, 1922.

578. *Ceramics and Road Materials;* 20 pages; 1,500 copies; published March 31, 1922.

Lists of Mine Operators—

List of metal mines in Canada; published October 31, 1921.
List of petroleum and natural gas wells; published January 17, 1922.
List of lime kiins in Canada; published December 14, 1921.
List of cement mills and sand lime brick plants in Canada; published December 21, 1921.
List of manufacturers of clay products in Canada; published January 15, 1922.
List of metallurgical works in Canada; published July 27, 1921.
List of coal mines in Canada; published December 29, 1921.
List of stone quarry operators in Canada; published February 15, 1922.
List of sand and gravel operators in Canada; published February 15, 1922.
List of non-metal mines in Canada; published January 25, 1922.
Statistical form 19C—silver, cobalt; published January 10, 1921.

French Translations

397. *Le phosphate au Canada.* Report on—by Hugh S. Spence; 169 pages, 32 plates, 12 figures, 13 maps; 1,000 copies; published February 16, 1922.

512. *Le graphite.* Report on—by Hugh S. Spence; 212 pages, 56 plates, 43 figures, 6 maps; 1,000 copies; published October 10, 1921.

543. *Rapport sommaire de la Division des Mines, du Ministère des Mines, pour l'année civile 1919;* 194 pages, 2 figures, 5 diagrams; 800 copies; published September 15, 1921.

546. *La production minérale du Canada pour l'année civile 1919.* Annual report on—by John McLeish; 82 pages; 800 copies; published August 5, 1921.

EXPLOSIVES DIVISION

English Publications

3. *Annual Report of the Explosives Division, Department of Mines, for the calendar year 1920;* 19 pages; 3,000 copies; published July 28, 1921.

5. *Annual Report of the Explosives Division, Department of Mines, for the calendar year 1921;* 18 pages; 2,500 copies; published March 22, 1922.

French Translation

4. *Rapport annuel de la Division des Explosifs, du Ministère des Mines, pour l'année civile 1920;* 19 pages, 1,000 copies; published November 22, 1921.

REPORTS IN PROGRESS ON MARCH 31, 1922

At the end of the fiscal year 1921-1922 the Geological Survey had, in the hands of the King's Printer, nine English reports and one French translation; the Mines Branch, two English reports and one French translation; and the Explosives Division, one French translation.

FRENCH PUBLICATIONS DISTRIBUTED FROM JANUARY 1, 1921, TO MARCH 31, 1922

The French publications of the Department of Mines, including those of the Geological Survey, the Mines Branch, and the Explosives Division, are distributed by the Editorial Division of the Department. From January 1, 1921, to March 31, 1922, there were distributed 12,141 copies in Canada and in foreign countries. Of these, 6,736 copies were forwarded in compliance with written or personal requests, and 5,405 copies were sent to addresses on the mailing lists.

——	To applicants	To libraries, etc., on mailing lists	Total
Geological Survey	5,585	2,163	7,748
Mines Branch	1,139	2,683	3,822
Explosives Division[1]	12	559	571

[1]Does not include copies distributed by the Explosives Division to their correspondents.

ACCOUNTING DIVISION

ACCOUNTANT'S STATEMENT

P. R. Marshall

The funds available for the work and expenditure of the Department of Mines for the fiscal year ending March 31, 1922, were:

	Grant	Expenditure	
		Amount	Total
	$ cts	$ cts	$ cts.
DEPARTMENT—			
Amounts voted by Parliament	234,078 14		
Civil list salaries		52,253 39	
Cost of living bonus		4,315 50	
Lignite Utilization Board		105,000 00	
Grant to Imperial Mineral Resources Bureau		12,166 67	
Grant to Canadian Institute of Mining and Metallurgy		3,000 00	
Expenses of Explosives Division		10,299 39	
Civil Government contingencies		5,099 81	
			192,134 76
Balance unexpended and lapsed			41,943 38
MINES BRANCH—			
Amounts voted by Parliament	434,843 04		
Civil list salaries		118,132 01	
Peat fuel investigations		40,122 05	
Expenses of fuel testing plant and laboratory		31,625 86	
Expenses of ore dressing and metallurgical laboratory		23,001 53	
Investigations of ore deposits and economic minerals		22,837 61	
Publication of reports and maps		15,882 26	
Wages of temporary employees		13,500 92	
Cost of living bonus		13,140 97	
Sundry printing and stationery		6,202 27	
Chemical laboratory		4,912 94	
Miscellaneous		2,987 88	
Advances 1921–22 to be accounted for in 1922–23, E. V. Moore $100		100 00	
			292,446 30
Balance unexpended and lapsed			142,396 71
DOMINION OF CANADA ASSAY OFFICE—			
Amounts voted by Parliament	28,684 44		
Earnings	4,281 98		
Salaries of staff		19,280 00	
Cost of living bonus		2,044 44	
Fuel, power, and light		941 45	
Assayer's supplies		1,127 87	
Contingencies		693 08	
Premium on bonds		600 00	
Electric burglar alarm service		360 00	
			25,046 84
Balance unexpended and lapsed			7,919 58
GEOLOGICAL SURVEY—			
Amounts voted by Parliament	667,180 91		
Civil list salaries		241,495 38	
Explorations, surveys, and investigations		180,251 07	
Publications of reports and maps		58,522 90	
Wages of temporary employees		37,630 24	
Cost of living bonus		23,908 33	
Sundry printing and stationery		20,096 22	
Miscellaneous		8,670 05	
Biological Division		3,677 58	
Forward	1,369,068 51	574,251 77	701,887 60

ACCOUNTANT'S STATEMENT—*Continued*

	Grant	Expenditure	
		Amount	Total
	$ cts.	$ cts	$ cts.
Forward	1,369,068 51	574,251 77	701,887 60
GEOLOGICAL SURVEY—*Continued*			
Photographic supplies		3,377 24	
Laboratory		2,894 98	
Specimens for Museum		2,376 63	
National Chemical Exposition		2,179 02	
School collections		1,885 00	
Instruments and repairs		831 12	
Expenditure chargeable to Superannuation Fund No. 4 Retirement Act		150 00	
Advances 1921-22 to be accounted for in 1922-23, F. W. Waugh		1,900 00	
			589,845 76
Balance unexpended and lapsed			77,335 15
	1,369,068 51		1,369,068 51

Summary

	Grant	Expenditure	Grant not used
	$ cts.	$ cts	$ cts.
Civil Government salaries	477,250 00	383,447 82	93,802 18
Department	172,666 67	135,565 87	37,100 80
Mines Branch	272,100 00	158,519 85	113,580 15
Assay Office, $26,000; earnings, $4,281.98	30,281 98	22,362 40	7,919 58
Geological Survey	335,500 00	318,307 86	17,192 14
Cost of living bonus	43,409 24	43,409 24	
Increases due to reclassification	37,710 62	37,710 62	
Expenditure chargeable to Superannuation Fund No. 4, Retirement Act	150 00	150 00	
	1,369,068 51	1,099,473 66	269,594 85

Casual Revenue

Sales of explosives permits and licences	$ 1,039 50
Sales of school collections and equipment	999 14
Sales of publications	723 48
Refunds, adjustment of cost of living bonus	820 04
Adjustment of claims for equipment lost	282 40
Revenue from fines for violations of the Explosives Act	180 00
	$ 4,104 56

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REPORT

OF THE

MINISTER OF AGRICULTURE

FOR THE

DOMINION OF CANADA

FOR THE

YEAR ENDING MARCH 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
J. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 16—1923]

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REPORT

OF THE

MINISTER OF AGRICULTURE

1921-1922

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

May it Please Your Excellency:

I have the honour to submit to Your Excellency a report of the Department of Agriculture for the fiscal year ended March 31, 1922.

The work of the department was carried out in a most efficient and satisfactory manner and there will be found included herein a summary of the operations of the different branches of the department, all of which is laid before Your Excellency under their respective headings.

The legislation affecting the department during the period consisted of:—

Chapter 15, 11-12 George V, intituled "An Act to amend the Animal Contagious Diseases Act." (Assented to June 4, 1921.)

Chapter 28, 11-12 George V, intituled "An Act to regulate the Grading of Dairy Produce." (Assented to June 4, 1921.)

Chapter 41, 11-12 George V, intituled "An Act to amend The Oleomargarine Act, 1919." (Assented to June 4, 1921.)

By Order in Council approved under date April 9, 1921, under and by virtue of the provisions of chapter 6 of the Statutes of 1918, 8-9 George V, intituled "An Act to authorize rearrangements and transfer of duties in the Public Service," the administration of the "Act respecting Agricultural Fertilizers," as amended, was transferred from the Department of Health to the Department of Agriculture as from the 1st day of April, 1921.

By Order in Council approved under date April 9, 1921, the regulations relative to the importation, manufacture and sale of oleomargarine in Canada established by Order in Council of the 30th day of August, 1920, were amended by adding clause (*c*) to section 15 thereof. (*Vide Canada Gazette*, vol. LIV, p. 4323.)

By Order in Council approved under date March 24, 1921, Regulations under and in virtue of the provisions of section 326 of chapter 53, 10-11 George V, intituled "An Act to amend 'The Inspection and Sale Act,'" were established to come into force on the date of their publication in the *Canada Gazette*.

These regulations were published in the *Canada Gazette* of April 16, 1921. (*Vide Canada Gazette*, vol. LIV, p. 4316.)

The above Order in Council and Regulations were republished, with corrections in the Regulations, in the *Canada Gazette* of May 7, 1921. (*Vide Canada Gazette*, vol. LIV, p. 4760.)

By Order in Council approved under date May 12, 1921, subsection (*h*) of section 7 of the Regulations under the Destructive Insect and Pest Act, and amendments thereto by Order in Council of May 24, 1920, was rescinded and a new clause substituted in lieu thereof, with a view to the prevention of introduction into Canada of the European Corn Borer. (*Vide Canada Gazette*, vol. LIV, p. 5007.)

By Order in Council approved under date May 18, 1921, the Ministerial Order issued in virtue of the provisions of "The Destructive Insect and Pest Act," 9-10 Edward VII, chapter 31, under date November 29, 1920, quarantining certain areas in the province of Ontario, in connection with the danger of the spreading of the "European Corn Borer" was rescinded and was replaced by an Order in Council containing amendments deemed expedient.

By Order in Council approved under date June 11, 1921, Mr. George H. Clark, Seed Commissioner, an officer of the Department of Agriculture, was appointed the representative of the Government of Canada as the accredited delegate from the Dominion at the International Seed Control Congress held at Copenhagen, Denmark, the 6th to 11th June, 1921.

By Order in Council approved under date November 5, 1921, the Cattle Quarantine Regulations authorized by Order in council under date November 30, 1909, and amendments thereto were further amended by adding subsection "A" to section 39 thereof—subsection "A" as follows:—

> "Cattle from fully accredited herds in the United States accompanied by a certificate signed or endorsed by a veterinarian of the United States Bureau of Animal Industry stating that they are from a fully accredited herd, and have been tested within one year from the date of importation, shall be exempted from the provisions of this section."

By Order in Council approved under date February 4, 1922, the Regulations under "The Animal Contagious Diseases Act" governing the importation of foreign wool and hair, as established by Order in Council of August 12, 1920, and amended by Order in Council of February 21, 1921, were rescinded and new Regulations established in lieu thereof. (*Vide Canada Gazette*, vol. LV, p. 3625.)

By Order in Council approved under date February 4, 1922, the Regulations under "The Animal Contagious Diseases Act" governing the importation of foreign hides, skins and by-products, as established by Order in Council of August, 9, 1920, were rescinded and new Regulations established in lieu thereof. (*Vide Canada Gazette*, vol. LV, p. 3623.)

By Order in Council approved under date February 7, 1922, section 18 of the Regulations under "The Destructive Insect and Pest Act" was amended. (*Vide Canada Gazette*, vol. LV, p. 3503.)

By Order in Council approved under date February 10, 1922, the Order in Council known as Notice of Quarantine No. 2 (Domestic) P.C. 1625, effected on May 18, 1921, also, the Ministerial Orders known as Supplements Nos. 1, 2 and 3 to Quarantine No. 2, (Domestic) effected respectively on August 26, 1921, September 7, 1921, and October 3, 1921, restricting the removal of corn fodder, etc., etc., from certain areas in the province of Ontario on account of the spreading of the European Corn Borer, were rescinded and new Regulations were substituted therefor. (*Vide Canada Gazette*, vol. LV, p. 3440).

By Order in Council, approved under date February 13, 1922, the Regulations established under "The Meat and Canned Foods Act" were amended. (*Vide Canada Gazette*, vol. LV, p. 3612.)

By Order in Council approved under date March 21, 1922, subsection (*a*) of section 7 of the Regulations under the "Destructive Insect and Pest Act" established by Order in Council of July 17, 1917, was rescinded and a new subsection substituted therefor. (*Vide Canada Gazette*, vol. LV, p. 4121.)

By Order in Council approved under date March 21, 1922, subsection (*h*) of section 7 of the Regulations under the "Destructive Insect and Pest Act" amended by Order in Council of May 12, 1921, was rescinded and a new subsection (*h*) substituted therefor. (*Vide Canada Gazette*, vol. LV, p. 4122.)

By Order in Council approved under date March 21, 1922, subsection (*i*) of section 7 of the Regulations under "The Destructive Insect and Pest Act" established by Order in Council of April 14, 1920, was rescinded and a new subsection substituted therefor. (*Vide Canada Gazette*, vol. LV, p. 4122.)

SUPERVISION OF RACE TRACK BETTING

By the amendment of Section 235 of the Criminal Code passed in 1920, the supervision of race track betting, under the pari-mutuel system, was placed in the hands of the Minister of Agriculture. The amended section in question was put into operation for the racing season of 1921, and it was decided that betting could be most effectively supervised, if officers of the Royal Canadian Mounted Police were utilized for this purpose. The co-operation of the R.C.M.P. was therefore secured and at all race meetings at which betting is permitted under the law, police officers were present to see that the provisions of Section 235 of the Criminal Code were carried out.

Four parties of police, each consisting of four men, were used, one party covering the Quebec tracks, one those in Ontario, the third in the Prairie Provinces and the fourth in British Columbia. In all, forty-seven race meetings, covering 305 days of racing, were supervised by the Department during 1921. Notwithstanding the fact that all the men employed were new to the work, they performed their duties most efficiently and satisfactorily, and in most cases, received the active co-operation of the racing associations themselves.

DOMINION EXPERIMENTAL FARMS AND STATIONS

The work of the Experimental Farms Branch was carried on actively during the fiscal year ending March 31, 1922, in spite of handicaps arising from shortage of staff and of buildings and equipment. During the year a new Experimental Station was established at Swift Current, Sask., in the heart of the semi-arid portion of that province. At this Station a special study will be made of what are termed "dry farming methods" and possibilities. It was found possible to break a large portion of this Station last year, some of the buildings have been put up, a Superintendent has been appointed, and preparations have been made to commence experimental work this spring coming.

Owing to limited appropriation it was not found possible to do very much work in the way of putting up new buildings on the Experimental Farms during the year just closed, the money available having been devoted to repairs of buildings already existing.

During the year the following publications were sent to the printer:—

Bulletins Regular Series—

No. 98, "Farm Business in Quebec".

Bulletins Second Series—

No. 47, "Commercial Feeding Stuffs".
No. 48, "Bulb and Bulb Bloom"
No. 49, "Nut Culture in B.C."

Bulletins New Series—

No. 1, "Poultry Feeds and Feeding" (reprint).
No. 2, "Bran Shorts, Middlings and Feed Flour".
No. 6, "Results of Experiments at Fort Vermilion, Alberta".
No. 8, "Fertilizer for Field Crops".

Exhibition Circulars—

No. 102, "Silo Construction".
No. 103, "Labour Saving Devices on the Irrigated Farm".
No. 104, "Fertilizer for Flowering Plants".
No. 105, "Bee Diseases".

Circulars—

No. 19, "Manurial Value of Seaweed".
No. 20, "Poultry Experiences at the Experimental Station for Vancouver Island".
No. 21, "Beef Scrap vs. Skim Milk for Egg Production".

Circulars New Series—

No. 1, "Mosaic and Leaf Curl of the Cultivated Red Raspberry".

NOTES ON THE SEASON

Although the winter of 1920-21 was very mild, the percentage of fall wheat winter killed was higher than in the two previous years. The summer of 1921 was marked by very severe and prolonged drought, which seriously affected the grain yield in most of the provinces, while the average yield of hay and clover was the lowest on record. The wheat crop was, as a whole, fair, however, and the yield of Indian corn for ensilage was high, which compensated partly at least for the scarcity of hay. Early fall rains benefited late potatoes, root crops and late pasture, upon

which cattle were able to grazo to a later date than usual. Some data are given in the following tables as to the yields and value of the principal field crops in 1921. In the second table the various classes of live stock in Canada covering the period 1916-1921 are given.

AREAS AND ESTIMATES OF YIELD AND VALUE OF FIELD CROPS, 1921

Crop	Area	Yield per acre	Total yield	Weight per measured bushel	Average price per bushel	Total value
	acre	bush.	bush.	bush.		$
Fall wheat	720,635	21·50	15,520,200	58·77	1·02	15,846,000
Spring wheat	22,540,889	12·75	285,337,900	58·10	0·80	227,090,000
All wheat	23,261,234	13·00	300,858,100	58·11	0·81	242,936,000
Oats	16,949,029	25·25	426,232,900	32·97	0·34	146,395,300
Barley	2,795,665	21·25	59,709,100	46·05	0·47	28,254,150
Rye	1,842,498	11·75	21,655,260	55·06	0·72	15,399,300
Peas	192,749	14·25	2,769,981	59·12	1·96	5,439,400
Beans	62,479	17·50	1,089,900	59·30	2·90	3,155,800
Buckwheat	360,758	22·75	8,230,100	47·35	0·89	7,285,100
Mixed grains	861,136	25·75	22,271,500	41·62	0·62	13,901,220
Flax	533,147	7·75	4,111,800	54·34	1·44	5,938,400
Corn for husking	296,866	50·25	14,904,000	55·56	0·83	12,317,000
Potatoes	701,912	152·75	107,246,000	.....	0·77	82,147,600
Turnips, mangels, etc	277,675	347·75	79,150,300	.....	0·44	39,801,080
Hay and clover	10,614,951	1·07	11,366,100	.....	23·56	267,764,200
Fodder corn	585,395	10·75	6,361,600	.....	7·05	44,880,800
Sugar beets	28,367	9·45	268,000	.....	6·50	1,742,000
Alfalfa	263,892	2·50	662,200	.....	19·95	13,211,000

NUMBER OF FARM LIVE STOCK IN THE DOMINION, 1917-21

Live Stock	1917	1918	1919	1920	1921
Horses	3,412,749	3,609,257	3,667,369	3,400,352	3,813,921
Milch cows	3,202,283	3,538,600	3,548,437	3,530,238	3,736,832
Other cattle	4,748,657	6,507,267	6,536,574	5,947,142	6,469,373
Sheep	2,369,358	3,052,748	3,421,958	3,720,783	3,675,860
Swine	3,619,382	4,289,682	4,040,070	3,516,678	3,904,895

In addition to the work on the regular Experimental Farms and Stations, experimental work was continued at the substations at Beaverlodge, Fort Vermilion, and Grouard in Alberta, at Forts Smith and Resolution in the Northwest Territories, at Swede Creek near Dawson, Yukon Territory, and at Salmon Arm in British Columbia. The work at Fort Vermilion has been summarized and reported upon in a bulletin which is going to press at the close of the year, and will very shortly be available to the public. In this publication there is contained a great deal of information which should be of the highest value to prospective settlers in the Peace River District.

The Animal Husbandry Division

The Animal Husbandry Division has undertaken an increased volume of experimental work during the past year. It has been found necessary to add the services of two assistants to the staff in order that the increasing amount of experimental and routine work, correspondence, etc., might be adequately handled.

HORSES

The stud of pure-bred Clydesdales at the Central Farm is growing steadily and now comprises one three-year-old Canadian-bred stallion, six registered mares, one yearling filly and three foals of 1921. At present writing four mares are in foal to the service of "Iron Signet," an imported son of "Signet," and two to the home-bred three-year-old "Craigie Begg" by "Craigie Knowes" (Imp.).

The use of vaccine in the pre-inoculation of mares and as a prophylactic treatment in foals against joint ill was carried on carefully during 1921. Notwithstanding the above precautions, however, coupled with scrupulous care and attention in reference to disinfection, two foals were lost, one with a typical development of joint ill at four weeks of age—a most unusual case. Thereafter the remaining mares foaled in fresh quarters where horses had never been housed before. No further cases developed. The same quarters, specially disinfected, are being prepared for this year's crop of foals. From every indication, the organism or organisms responsible for joint ill may be carried over in stables for indefinite periods. The use of vaccines must be accompanied by clean foaling quarters.

The force of work horses has been well maintained, being improved in quality and excellence generally, and, in so far as health is concerned, not only were there no losses but the necessity for veterinary service has been limited to one or two calls for minor trouble. The horses have been responsible for 6,908 days' work during 1921-22.

Figures have been obtained with reference to costs of rearing and maintenance and the yearly cost of horse labour reduced to an hourly basis; experimental and test work has been carried on (1) with joint ill vaccines, methods of disinfection, studies of suitable quarters, etc., with reference to the control of joint ill; (2) corn in the ration of the winter-fed working horse; (3) applications best suited to the legs of working Clydesdale horses—several kinds and types of oils were tested.

BEEF CATTLE

During the summer of 1921 no work was carried on in steer feeding. In the month of June, thirty-five steers that had been finished during the winter months under shed and corral feeding conditions were sent to Glasgow. These steers were representative of the class of animal that Canada is able to produce and were in no sense a select, or show lot. Owing to delayed shipment, the price obtained for these steers was considerably lessened as compared with prices a month earlier. The net price received was equivalent to 9 cents in Montreal.

It is interesting to note that these steers, while considered prime for Canadian trade, were slightly unfinished when on the British market. Nevertheless, they were well received and obtained a higher price per pound than a consignment of specially selected and fitted steers from Western Canada. The latter were overfat. The shipment, in general, was the object of much favourable criticism and some useful figures have been obtained by the division.

It is proposed to feed some four or five cars of steers during the summer of 1922.

DAIRY CATTLE

There has been outstanding improvement in the dairy herds. For several years much trouble has been encountered due to tuberculosis in the herd, persistent reactions being responsible for heavy losses both in regard to individuals and cumulative results in breeding and selection. Apparently, however, the use of, in the first instance, the triple test and latterly the combined test, has been highly successful in eliminating the sources of infection. Up to the present, the herd has passed two tests without evidence of reaction or suspicion and full accreditation is looked for in a few months.

As formerly, four breeds are represented, Ayrshire, Holstein-Friesian, Jersey and French Canadian, with special emphasis on the three first mentioned. A very good start has been made in the re-establishment of a herd of Jerseys. In all, there are now 150 head of cattle of all ages and breeds.

The herd of reacting cattle operated under the Bang system has given excellent results viewed from every angle. From this herd (made up largely of the best individuals in the herd during the past few years) has been secured an excellent lot of calves which are being successfully raised in the main herd. The adoption of the Bang system with its ensuing success has had much to do with the rapid results attained in rebuilding the main herd.

As in the past, many well-bred, tuberculin-tested calves from tested dams and proven sires have been disposed of to farmers and breeding associations. The general downward trend in prices both with reference to cattle and products has, until the last few months, considerably lessened sales. Latterly, however, there has been a demand for good bull calves and it is interesting to note that buyers show much keener discrimination in regard to breeding and ancestry. Only duly qualified calves are wanted.

A greater number of cattle than before have been qualified in Record of Performance and a number of good Record of Merit tests have been made, in which connection may specially be mentioned the showing of one Holstein cow, with a seven-day record of over 34 pounds and 142 pounds in thirty days.

Experimental Work with Cattle.—A number of experiments and tests have been conducted briefly as follows:—

1. Routine experimental work, including costs of rearing and production.

2. Further test work with abortion treatment, including the use of abortion serum, treatments for retained placenta, sterility, etc.

3. Tests of the feeding value of silage crops—corn versus sunflowers versus peas, oats and vetches. This work, insofar as sunflowers were concerned, was conducted largely to corroborate tests conducted at other Farms and Stations. It was demonstrated clearly that, while sunflower silage is a close competitor of corn, lacking slightly in palatability, it is in general not to be recommended in districts where corn can be grown successfully.

4. Dried beet pulp has been tried out extensively as a replacer of roots, both as a part and as the full silage component in the ration, and also as a direct substitute for meal. This test indicates that beet pulp, where procurable at relatively reasonable prices, is primarily an economical substitute for roots or even silage and that it may with profit be used to replace meal.

Tests were also conducted as to the best ways of feeding this pulp, dry, soaked in hot and in cold water, and with molasses. Properly prepared, it is highly palatable.

5. A fairly extensive experiment has been conducted in commercial calf-rearing in an effort to ascertain the economy of vealing dairy calves.

6. Further test work has been carried on with milking machines, two new machines having been added to the list. To date, thirteen machines have been tested. Unfortunately, lack of the services of a dairy bacteriologist has made impossible one of the most interesting phases of milking machine test work.

7. Studies and analyses of ventilation systems installed in the cattle barns have been made and much interesting data collected.

THE DAIRY

The splendid facilities offered by the dairy building completed last year have made better work possible in this field. During the present year a well-controlled cheese-curing room has been added.

Experiments have been carried on in the manufacture of new kinds of cheese, resulting in the origination of Meilleur cheese, a product of full flavour and pleasant aroma. This cheese is comparatively simple in process of manufacture, is made in the popular small size and has met with unqualified approval when subjected to discriminating tests. Apparently it will meet with ready demand in a commercial way and will be placed on the market in a limited way at once.

Other varieties of cheese have been manufactured, including Cheddar, cream cheese, Coulommier, Camembert, Wensleydale, etc.

The regular routine work has been carried on, including the handling of milk, the manufacture of butter and cheese and the testing of milk and cream for this Farm and for farmers and dairymen. All Record of Merit testing has been made by the dairyman.

SHEEP

Excellent range facilities have been responsible for improvement in the Shropshire and Leicester flocks kept at Ottawa. In all, there are 147 mature breeding sheep on hand. A high-class, imported Shropshire ram has been added and lambs sired by him are outstandingly good. The flocks have been subject to rigid culling and selection with resultant uniformity of type. The 1922 lamb crop has been up to standard and responsible for over 150 per cent increase. Considerable difficulty was met with, as compared to other years, in disposing of ram lambs of the 1921 crop, this due to the decided drop in values of sheep and sheep products. Many good breeding ram lambs were of necessity castrated.

SWINE

The herds of Yorkshire and Berkshire swine are now in a high state of excellence and reflect the effort that has been put forward during past years in strictly adhering to type and the development of strain and family. There are 209 pigs of all breeds and ages on hand at present. Approximately three carloads of market hogs have been sold and the usual heavy demand for breeding stock met.

Experiments.—Experimental and test work with swine has covered a wide field:—

1. Costs of rearing and production.
2. Comparative tests of Yorkshires, Berkshires, and crosses, from weaning to dressed carcass.
3. Buttermilk versus skim milk versus water-slop for nursing sows.
4. The mineral requirements of the indoor fattening hog.
5. The economy of the pasturing versus the soiling system.
6. Types of buildings best suited to (*a*) summer, (*b*) winter feeding.
7. The cause and control of rheumatism in swine.
8. The mineral requirements of the pregnant sow in winter.
9. Beet pulp versus roots for pregnant sows in winter.
10. Tests of commercial self-feeding and watering devices.
11. The effect of self-feeding on the quality of the market hog.
12. The economy of using water heating devices for swine in winter.
13. Further studies in economical housing requirements.
14. Further control work with reference to intestinal parasites.
15. Tests of insecticides, ear marking devices, ear tags, etc., etc.

Full report on all of the above is now being made.

BRANCH FARMS

As in the past, assistance has been given to Branch Farms in the purchase of stock and feeds; the outline, suggestion and criticism of experimental projects;

collection and correlation of records, experimental and test work; checking and revising reports, etc. All Branch Farms have been visited at least once by the chief officer. Practically no buildinig work has been undertaken.

EXTENSION WORK, PUBLICATIONS, CORRESPONDENCE AND GENERAL ROUTINE

Correspondence has been increasingly heavy. Three new publications are now completed, while two others are well under way. Pamphlets and circulars have been prepared and many press articles published. Assistance has been given farmers and stockmen, as in the past, in the supplying of plans and blue prints. Incidentally, this phase of the work could be greatly extended with more assistance.

The members of the staff of this Division have attended numerous live stock gatherings in practically all parts of Eastern Canada—judging, lecturing, demonstrating and purchasing.

Division of Field Husbandry

Crop yields at the Central Experimental Farm in 1921 were very uneven. Hay and corn gave excellent yields while grain crops on the other hand were very poor indeed. It may be interesting to examine these yields to see if any useful deductions may be drawn.

Hay gave, on a 40-acre field, a yield of 4.8 tons per acre. In view of the very poor hay crops throughout Eastern Canada this yield is very remarkable although it must be stated that the weather at Ottawa was much more favourable for hay production than it was throughout Eastern Canada as a whole. Nevertheless, there were other factors in addition to the favourable weather which influenced the yield, the most important of which was the use of alfalfa along with the regular hay mixture. A small amount of alfalfa seed, in this case six pounds per acre, is included in the regular hay mixture of timothy, red clover, and alsike; this alfalfa, in many years, materially increases the yield. In 1921 three cuttings of hay were secured, the first cutting consisting of a mixture of about equal parts of red clover and alfalfa, the second cutting consisting of a mixture of red clover and alfalfa with the latter crop predominating, while the third cutting consisted exclusively of alfalfa. Owing to the deep root system of alfalfa, it is believed to be able to withstand short periods of drought better than more shallow-rooted crops which are unable to utilize deep subsoil moisture.

Corn gave, on a 30-acre field, a yield of 17.4 tons of ensilage per acre. This crop is more able to withstand periods of drought and hot weather than many other crops. It produces the largest amount of feed per acre of any of the farm crops and while entailing more labour than either hay or grain, the work does not come when these crops are being handled. Mangels gave a yield of 26.5 tons per acre and turnips a yield of 4.9 tons per acre, the latter crop being seriously affected by rot. Neither of these crops and especially the turnips is as satisfactory as corn either in yield of dry matter or in cheapness of production.

Grain crops, with the possible exception of barley, were very poor. Oats yielded 34.7 bushels per acre, wheat 16.2 bushels per acre and barley 37.4 bushels per acre. These crops were grown on good, well drained land, in a three year rotation of corn, grain, and hay, in which the corn crop received an application of manure of 18 tons per acre. Moreover, they were all grown from good seed, were treated for smut and seeded early in the season. Planted under the best of conditions they, nevertheless, produced, with the exception of barley, very poor crops. Extremely hot, dry weather was experienced during the filling period causing the yield to be seriously reduced. It is significant to note in passing, that under these circumstances and on rich soil, barley produced the largest crop; in a cooler season and on less fertile soil, oats may be expected to do comparatively better.

NEW WORK STARTED

A considerably increased programme of field husbandry experiments was commenced in 1921. Several experiments were undertaken in connection with commercial fertilizers in addition to the experiments already in progress along this line. The chief object of these studies is to learn the most economical applications of fertilizers and the crops which respond with the largest profit. An attempt is being made to learn what fertilizers will give the largest profits on land which is left in hay for several years, then ploughed and seeded to oats. Such land will represent millions of acres of farm land which never has and never will receive any farm manure. It will be interesting to learn if commercial fertilizers will make such land more profitable.

Experiments have been commenced with green manure to learn the most profitable methods of utilizing such crops to increase the fertility of the soil. Cultural experiments have been started both on a sandy loam soil and on a heavy clay soil to find the most satisfactory methods of handling such types of soil. Comparisons of various hay crops, including alfalfa and sweet clover, are also being made on these soils.

SOIL MOISTURE INVESTIGATIONS ON THE PRAIRIE

In view of the serious losses occasioned in several parts of the prairie through a shortage of soil moisture, technical investigations have been commenced to learn how such moisture may be more effectively conserved and utilized. Soil moisture is the main limiting factor in crop production throughout the entire prairie and, as the rainfall cannot be regulated, the only controllable factor is the conservation and utilization of the soil moisture in the most intelligent manner.

Deep cans are used for these experiments so that the crops will have normal field conditions. The cans are weighed regularly thus giving definite knowledge on the utilization of the soil moisture. Experiments are being conducted to learn what crops and what rotations are most successful as well as what cultural operations most effectively conserve moisture.

BRANCH FARMS

The Division of Field Husbandry co-operates with the Branch Farms in planning experiments to provide information applicable to various districts throughout Canada. The data collected at various Farms is compiled and summarized at Ottawa in order that more comprehensive information may be secured which will be useful in areas intervening between Branch Farms and to confirm the results secured at each farm. An attempt is made, not only to gain information on problems of immediate concern but also to endeavour to have information available to prevent the occurrence of some problems of the future.

Division of Horticulture

There is such a great variety of climate in Canada and the temperatures during the winter months play such an important part in determining the success or failure of different kinds and varieties of horticultural plants, that each Experimental Farm and Station has its value in determining what can be grown successfully in the part of Canada it serves. The summers also vary much, and certain plants succeed well where the season is comparatively cool and moist which do not do nearly as well where the summers are hot and dry. On the other hand, certain fruits and vegetables require hot weather to reach perfection. Hence, one important feature of the horticultural work is to determine by actual test what kinds and varieties succeed best, what method of cultivation is most desirable for each

part of Canada, and, when the information has been obtained, to see that the farmers and also the dwellers in cities and towns get it as soon as possible. Thus the Experimental Farms and Stations are bureaux of information disseminating horticultural knowledge based on experimental work, and it is felt that the number of men and women who now write asking for information is good evidence that they have faith in the work which has been done.

Beginning at the extreme East, the Station at Charlottetown, P.E.I., has good orchards and bush fruit plantations, which fruited well in 1921. All but the very tenderest fruits can be grown on Prince Edward Island, while vegetables and flowers succeed well, and the experiments here have been of great value to the people.

The Experimental Station at Kentville, N.S., serves principally the Annapolis and adjacent valleys where the fruit industry is one of great importance. The work done at this Station is much appreciated by the growers, but the Station is of particular value to the younger men going into the business who look to the Station for definite information in regard to horticultural crops. These men are particularly interested in learning how long it takes fruit trees to come into bearing and how much fruit they may expect from each sort. In 1921 there was a good crop of fruit at the Station, and the experiment under way to determine the relative yields of the different commercial varieties gave some very significant results. From trees planted in 1912 the average yield per tree for the past three years has varied from ·940 of a barrel per tree for the Milwaukee to ·226 for Crimson Beauty, or over four times as much from the best as from the poorest yielding variety. There are eighteen sorts in this test, including most of the well-known varieties grown in the Annapolis Valley. There is need for apples of higher colour for the Annapolis Valley, and a test with varieties is being made to try and discover something that will be a marked acquisition. Many cultural and spray experiments are under way.

In northern Nova Scotia the Experimental Farm, Nappan, continues to serve a useful purpose so far as horticulture is concerned by demonstrating that fruits, vegetables, and the finest of flowers can be easily grown in the colder parts of that province.

New Brunswick succeeded in winning the highest award for apples at the Imperial Fruit Show in London, England, in 1921, showing how well adapted this province is to this fruit. At the Experimental Station at Fredericton a large orchard has been established and is now in bearing, in which many varieties are being tested to determine what are most suited for the comparatively cold climate of this province. Among the newer sorts the Melba, originated in the Horticultural Division at Ottawa, gives great promise of being a valuable acquisition. Experiments in vegetables and flowers are also being carried on as at the other Stations.

The Experimental Station, Lennoxville, P.Q., is one of the best places for testing the hardiness of fruits in Eastern Canada as the temperatures are between 40 degrees and 50 degrees below zero in some winters, and much useful information is being obtained in determining the hardiest sorts. Many varieties have been winter-killed, but others have withstood the cold well, and soon it will be possible to recommend certain sorts that can be grown with good success in these colder parts of the Eastern Townships of the province of Quebec.

The horticultural work at the Experimental Station, Cap Rouge, P.Q., continues to give results of value to the district about Quebec. While there are large orchards here, vegetables have received much attention as there is a good market for large quantities in the city of Quebec.

The orchards at the Experimental Station, Ste. Anne de la Pocatière, are a good demonstration to the people near the St. Lawrence below Quebec. Apples succeed better here than at Lennoxville, the temperatures not being so low in

winter, and the European plum succeeds better along this part of the St. Lawrence than anywhere else in the province of Quebec. Many varieties of great interest fruited in 1921. Vegetables and flowers also did well.

There is considerable horticultural work at the Experimental Station at La Ferme, P.Q., on the Transcontinental Railway. It has been shown by the experiments that the hardier vegetables succeed admirably and small fruits do well, and the best varieties of each are being determined. At Kapuskasing, in Ontario, also on the Transcontinental line, somewhat similar experiments are in progress. At both of these Stations the results in the season of 1921 were better than in any previous year.

At the Central Experimental Farm, Ottawa, notwithstanding the exceedingly dry summer, the crops of fruit and vegetables were good on the whole. The many experiments under way were continued, details of which will be found in the Interim Report. The introduction of some of the new varieties of fruits and vegetables originated at the Central Farm is being pushed by offering them for sale, and the demand has much exceeded the supply so far. When nurserymen have these in quantity the sale will be discontinued.

Much attention was paid to vegetables in 1921, as in previous years. There is room for earlier varieties of most vegetables, and, as these are usually the most profitable, efforts are being made to originate such. The introductions of early varieties of sweet corn from the Horticultural Division have meant much to the Prairie Provinces, and the Pickaninny, Sweet Squaw, and Early Malcolm are in much demand. The Alacrity tomato has also done exceptionally well in the colder parts.

Considerable attention has always been paid to the ornamental side of horticulture at Ottawa. This work has been much appreciated, and attracted great attention in 1921. By writing to the Experimental Farm, those desiring to plant their places can get the names of the best varieties. The sample hedges attract a large number of people, who can see, side by side, eighty-four hedges being tested for beauty, permanency, and other characteristics.

Experiments in the greenhouses give results of value to florists and market gardeners.

The correspondence of the division at Ottawa is very heavy and is the best proof that the value of the work being done there is recognized by the people.

In Manitoba there are the Experimental Farm at Brandon and the newer Station at Morden. The horticultural work at Brandon has been of great value to the province, the vegetable garden alone, which is visited by great crowds every year, being a very fine demonstration of the possibilities of horticulture on the prairies. Tree fruits, with the exception of the native plum, do not do well at Brandon, but at Morden apples succeed very well, and already trees are in bearing which were planted there in 1916. The lower elevation in southeastern Manitoba is evidently favourable to the successful growing of apple trees, as they have been fruited at various points. The orchards at Morden are large enough to give a good demonstration of what can be done. Many varieties are under test not only of apples and plums, but of small fruits as well. Vegetables are also a prominent feature of the work.

The long-established Farm at Indian Head, Sask., and the newer Stations at Rosthern and Scott, Sask., continue to serve their districts by experimental work in horticulture. The lists of varieties found best and the methods of cultivation proven most successful have been of great aid to the settlers. This also applies to the work at Lethbridge and Lacombe, the two Alberta Stations. In the Peace River District there are the substations at Beaverlodge, Alta., and Fort Vermilion, Alta., which are doing very valuable work in finding out the best varieties for these districts and any special methods in growing them that are necessary for best success. The season of 1921 was a particularly favourable one for horticultural crops, and in this season and others it has been clearly shown that settlers can raise an abundance of small fruits and vegetables in the Peace River District.

In addition to the old-established Experimental Farm at Agassiz, there are three other Stations in British Columbia, namely, at Invermere, in the Columbia River valley; Summerland, on Okanagan lake; and Sidney, on Vancouver Island, at all of which valuable horticultural work is being done. Because of the importance of the fruit industry in the Okanagan District, the greatest amount of work is being done at the Summerland Station, where there are extensive experiments in orchard cultivation, irrigation, and variety testing. The trees did well here in 1921, and many are now bearing fruit. Cheaper methods of maintaining orchards are being worked out, and the results this season with vetch and alfalfa have been very promising. Vegetable experiments were continued as usual.

At Invermere Station the climate is rather cold for tree fruits, although some apples and plums succeed. Bush fruits do very well, as do vegetables. The potato succeeds remarkably well here. Horticulture at Agassiz is now a relatively small feature of that Station, but the experiments conducted are of value for the lower mainland of British Columbia, which district it serves. The collection of ornamental trees here is very good, and they demonstrate the very rapid growth in this climate.

At Sidney, on Vancouver island, horticulture is a prominent feature of the Station's work, a great variety of crops being grown owing to the mildness of the climate. Although this is a relatively new Station, a large proportion of the people of the district look to it for definite horticultural information. In 1921 special attention was again paid to growing vegetable seed, as on Vancouver Island the climate is very favourable to the production of both vegetable and flower seed.

The Cereal Division

THE SEASON

In many parts of Canada the growing season of 1921 will be remembered as perhaps the hottest for many years. This extreme heat during the critical period of growth of the cereal crops is responsible for the low yields and poor grades in many areas in the Dominion.

The drought in eastern Ontario was extremely bad, although at Ottawa conditions were more favourable than in the surrounding country. At Ottawa, the spring opened early, the latter part of April and the beginning of May being most favourable for spring work. Seeding on light soils was begun on April 14. May was moderately dry with normal seasonal conditions. Heavy rains occurred at the close of the month and at the beginning of June. Towards the end of June the temperatures became abnormal and remained so until well into July. This period was the most critical as it occurred at the time that the heads were filling. This extreme heat advanced the maturity abnormally and greatly decreased the yields; at the same time the humidity of the atmosphere proved very favourable to the growth of plant diseases. August was considerably cooler than June or July, but this moderation of temperature came too late to benefit anything but the very late grain crops.

Many districts of eastern Canada suffered severely from drought, while the prairies were badly affected in some parts, although, at the latter part of June, prospects were for a bumper crop, the drought of July and the excessive rains of September ruined the prospects and greatly lowered the yield and grade of wheat.

TEST OF VARIETIES

The number of plots at Ottawa was about the same as the previous season, namely, 756, of which about 600 were fixed varieties. There were 537 plots of one-one hundred and twentieth of an acre in size, many of which were unnamed sorts produced by crossing and, as yet, not sufficiently studied to be made available to the public.

NEW VARIETIES ORIGINATED AT OTTAWA

It was thought advisable to give names, this season, to about thirty cross-bred and selected varieties which have hitherto been grown under numbers. Only the most promising sorts have been picked out. Further study of these will be necessary before introducing any of them for the use of farmers generally. It is not expected that all the varieties recently named will be given to the public, but only the most noteworthy.

In spite of the considerable number of varieties named and the thousands of new sorts rejected as unsatisfactory, many unnamed kinds still remain which have not yet been subjected to a sufficiently long test. These will doubtless furnish some valuable new sorts after a few years' further study.

It is intended to publish a bulletin in the near future which will include descriptions of and other particulars concerning seventy or more of the best varieties that have been originated or selected and named at Ottawa. This bulletin will include about twenty-nine sorts of wheat, twelve of barley, nine of oats, seven of peas, six of beans, five of flax, and one of each of spring rye, winter rye, emmer and sunflowers.

DISTRIBUTION OF GRAIN SAMPLES

During the winter the usual free distribution of grain samples was conducted. In all, approximately 10,000 samples were sent out, made up as follows: 3,230 oats, 2,900 wheat, 1,090 barley, 30 flax, 850 beans and 1,460 peas.

It is very interesting to note that the demand for Ruby wheat has remained about the same as last year, while that for Marquis wheat has considerably increased. This year, we were able to supply almost all the demand for peas, as our supply was greatly increased by the addition of a recently introduced pea named Mackay Ottawa 25, over 500 samples of this variety being sent out this year.

Division of Forage Plants

Great progress has been made during the last two years in again taking up, on an extensive scale, breeding and experimental work with forage plants discontinued to a considerable extent during the war years. Root seed raising has been cut down until only small areas, sufficient to carry on selection and breeding work, are now devoted to this work, leaving the Division more time and land to deal with regular work. During war years however, a great deal of material to serve as foundation stock was collected by Dr. M. O. Malte, and this material came into use in 1920. In that year a large number of individual plants of clovers and grasses were set out and from these many selections and isolations were made in 1921.

Variety Tests

Variety tests were conducted with Indian corn, sunflowers, field roots, annual hay crops, red clover, timothy and western rye grass.

The uniformity of field root varieties has shown great improvement during the last two years although some samples tested still show very undesirable types and lack of uniformity.

BREEDING

Western Rye.—Plots, each containing an average of some 300 individual plants set out in rows 3 feet apart with 1½ feet between plants in the row, were set out in 1920 of 140 varieties of western rye. During the summer of 1921, these plots were cut for hay and seed, and records also taken of the aftermath produced where the cutting was made for hay. As an indication of the variation in yield among varieties it may

be mentioned that the highest yielding variety, for hay, gave over seventeen times the yield of the poorest variety, and that a high yielding variety for seed gave over ten times the yield of the lowest yielding variety.

Seed was harvested from all lots and a number of the most desirable varieties are being sent to the Branch Farms and Stations for further test in 1922.

Timothy.—Thirty-six lots, each representing a selection from individual plants, were set out in plots for comparative test and seed multiplication. A few additional isolations were made from the plant breeding block planted in 1919.

In 1919 after isolations were made in the breeding block, the balance of the plants were allowed to set seed without isolation, seed from these being harvested in bulk. This seed was sown in comparison with varieties from Sweden and the United States and when harvested in 1921 gave not only a more uniform crop but also a heavier hay yield than the other varieties tested. Seed in bulk was again harvested from the breeding block and will be tested in 1922 at Ottawa and on some of the Branch Farms and Stations in comparison with timothy from Eastern and Western Canada and with varieties obtained from the United States.

Kentucky Blue Grass.—Sufficient seed of two outstanding selections of Kentucky Blue grass was harvested to allow these selections to be sent to several of the Branch Farms for comparative tests.

Orchard Grass.—From a number of individual plants set out in 1920, thirty isolations were made and seed harvested.

Meadow Fescue.—Twenty-eight individual plants were isolated and seed obtained for further trial in 1922.

Miscellaneous Grasses.—A number of isolations were made of Tall Oat grass, Awnless Brome grass, Red Top and Red Fescue.

Red Clover.—Seed was harvested from plots of three selections of a variety of Red clover, which has at Ottawa shown strong perennial tendency. There was also harvested a small quantity of seed from a number of selected plants of this variety. These selections will be tested in 1922 at Ottawa and on some of the branch Farms. In variety tests with Red clover at Ottawa, the Ottawa selection has compared very favourably with other lots tested.

Alfalfa.—A number of individual plants were isolated and additional plots set out from isolations made in 1920 at Ottawa and Summerland.

Field Roots.—The improvement of Yellow Intermediate mangel and Danish Champion field carrot was started some years ago and much progress has been made in improving the uniformity and increasing the dry matter content of these varieties. Last year selections were tested at Ottawa and on the branch Farms and Stations, and gave in all respects very satisfactory results. Of the Ottawa Yellow Intermediate four families (B., D., M., and L.) were tested at Ottawa, which all gave excellent total yields per acre and tested dry matter content as follows: B. 10·57 per cent; D. 13·10 per cent; M. 13·20 per cent; L. 12·60 per cent.

One-eighth acre of Yellow Intermediate mangel, and one-eighth acre Danish Champion field carrot were set out for the production of stock seed last year. Weather conditions were very unfavourable and although a perfect stand of plants was obtained only sufficient seed was harvested to allow for variety tests at Ottawa and on the Branch Farms. Stecklings were also grown from the four Ottawa families of Yellow Intermediate mangel.

Sunflowers.—During the summer of 1920 the Dominion Agrostologist collected, principally in the vicinity of Rosthern, Sask., a great number of samples of sunflower seed, each sample representing a distinct type. This material was planted in 1921

and a number of selections, isolations and crosses were made to obtain material for carrying out breeding work. Great variation was noted between different lots, for instance in height alone the different lots varied from 1½ to 16 feet.

Division of Chemistry

The following brief record of the more important phases of work undertaken by the division during the past year will indicate the scope and character of its several activities and serve to emphasize the important part the division is taking toward the improvement of Canadian agriculture.

Educational and Advisory.—This consists largely in correspondence and analytical work for the individual farmer—a real chemical service for the man on the land. The correspondence deals with enquiries relating to soils and their management, liming, manures, the use of fertilizers, feeding stuffs, well waters, etc., etc., and the examinational and analytical work is in connection with samples sent therewith. This is an important and ever increasing branch of work, necessitating the expenditure of a considerable portion of the time and energy of the Division, but it is a wise expenditure, as it directly helps to make the occupation of farming more intelligent and more profitable.

The sample register of the division shows that 4,122 samples were received at the laboratories during the fiscal year ending March 31, 1922. Their classification may be given as follows:—

Soils	626
Manures and fertilizing materials	146
Fodders, feeding stuffs, forage plants	597
Well waters	300
Samples from Meat and Canned Foods Division	2,190
Miscellaneous	263
	4,122

These include samples sent in by farmers and those collected in connection with our own investigational and control work.

Soils.—A large proportion of the soils received are those sent in by farmers. These are not submitted to a complete chemical analysis, but such chemical and physical determinations are made as will enable a report as to their general nature and fertility, with suggestions and advice as to improvement by drainage, manures and fertilizers, suitability for various crops, etc. The advice is made as practical as possible.

An investigation was begun in 1910 on several of the northwestern Farms and Stations to determine, as far as might be practicable, the influence of cropping, rotations and cultural operations on the fertility of the soil. The plots under experiment were sampled when the investigation was instituted and a second collection has now been made. The analysis of these samples is now in progress and it is fully expected that the results will prove of value in the future management of the soils of the Prairie Provinces.

The analysis of soils first undertaken for the Reclamation Service of the Department of the Interior in 1915, for the purpose of assisting in the classification of the irrigable lands of Southern Alberta and southwestern Saskatchewan, has been continued and excellent progress made. The chief object of this work is the determination of "alkali," where present, and the results have allowed us to report upon the lands examined as to their suitability or otherwise for cultivation under irrigation.

Satisfactory progress has also been made with respect to the solution of certain problems incidental to irrigation in the semi-dry belt, e.g., the vertical movement of alkali in heavy clay soils under irrigation and the alkali content of soils as related to crop growth.

Feeding Stuffs, Fodders, Forages.—The quality and nutritive value of a considerable number of mill and other feeds found on the market, have been determined. Much interest has been evinced in this matter, as indicated by the number of enquiries and of samples sent in for analysis.

About two hundred samples of the milling by-products of wheat-bran, shorts, middlings and feed flour—collected throughout the Dominion and representative of the general output, have been critically analysed, with the view of furnishing data for the revision of standards of these feeds.

Among forage crops, sunflowers and sweet clover have received special attention. The composition of these plants at several stages of growth has been determined, in order to gain information with respect to the right time for ensiling (sunflowers) or cutting for hay (sweet clover).

Two bulletins have been written and issued during the year from the results of this work: "Commercial Feeding Stuffs" and "Bran, Shorts, Middlings and Feed Flours." Both make available to the farming public information that will be of service in the economic purchase of feeding stuffs.

Sugar Beets.—Seed of four approved factory varieties, including seed grown in Ontario and British Columbia, was sown on experimental plots on eighteen of the branch Farms and Stations throughout the Dominion and the product analysed as to the sugar content and purity.

As in past years, the results on the whole were excellent and beets of good quality were obtained from a large number of points. It is manifest from this investigation, now in its twentieth year, that soil and climatic conditions in several of the provinces are eminently favourable to the growth of beets for factory purposes.

Field Roots.—The more important strains, types or varieties of mangels and carrots, as advertised in the catalogues of Canadian seedsmen and grown on the Central Experimental Farm have been analysed. Further assistance has been rendered the Division of Forage Plants by the determination of dry matter and sugar content of specially bred and selected "mother" roots from the experimental grounds, and which subsequently, if the chemical data were found satisfactory, would be used for seed production.

In 1921 results show that the average dry matter and sugar content of the twenty varieties of mangels were 9·73 per cent and 4·00 per cent, and for the thirteen varieties of carrots, 10·7 and 2·83 per cent, respectively.

The Fertilizing Value of Rain and Snow.—This investigation, now in its fifteenth year, indicates that the annual amount of nitrogen in soluble compounds furnished by the precipitation per acre is approximately 6¼ pounds—an amount equivalent to that in an application of, say, 40 pounds of nitrate of soda. It is thus seen that the rain and snow have a distinct fertilizing function, more particularly in connection with the all-important matter of soil nitrogen and its maintenance.

Well Waters from Farm Homesteads.—This has always been an important phase of the division's work and we believe it has had a direct influence on the farm water supply throughout the country generally. Of the waters examined during the past year, 24 per cent were reported as pure and wholesome, 18 per cent as suspicious, 36 per cent as seriously polluted and 22 per cent as saline.

Investigational Work With Fertilizers.—Fertilizer experiments have been conducted, as in past years, on a number of the Farms and Stations of the System.

Among the more outstanding results of the year reference may be made to the superiority of superphosphate to basic slag as a source of phosphoric acid for the potato crop but the considerably greater influence of basic slag on yields of hay, especially clover hay. Another important indication from this work is the value of an early application of nitrate nitrogen for stimulating crop growth, particularly grain, especially in cool and backward seasons. The most profitable use of fertilizers has been when the soil is fairly rich in humus, as from moderate dressings of barnyard manure.

Investigation and Control Work for the Meat and Canned Foods Division. Health of Animals Branch.—This work comprises the examination, chemical and microscopical—of samples from the packing houses and canneries of the Dominion and of those submittted in the administration of the Oleomargarine Act. They include lards and compound lards, butters and oleomargarines, denaturing oiils, sausages, potted and preserved meats, evaporated and condensed milks, milk powders, canned and preserved fruits, canned vegetables, dried apples, jams and many other artiicles of food.

The primary object of this work is of course to ensure that those food products conform to government standards of purity; it protects the health of the consumer and at the same time has an important bearing on both our export and import trade in many important food products.

In addition to the work outlined as above and that for the several branches of the Department of Agriculture, investigatory and analytical work for a number of the departments of the Government service, e.g., Customs and Excise, Post Office, Fisheries, Interior and the Soldiers' Settlement Board and the Soldiers' Civil Re-Establishment Commission has been undertaken and reported on.

Division of Botany

In the year 1915 the three prairie provinces, Manitoba, Saskatchewan and Alberta, produced about 390,000,000 bushels of spring wheat on an area of 13,300,000 acres. In 1916 the same provinces produced 196,000,000 bushels on an area of approximately 12,000,000 acres. Allowing for the decrease in acreage in 1916, the average yield per acre in 1915 was 30 bushels as against 17 bushels in 1916.

Most of this decrease in yield was due to grain rust, so prevalent in the year 1916. In round figures the farmers of the West carried, in 1916, a loss of 165,000,000 bushels of spring wheat valued at $212,850,000. In 1915 the price was considerably lower, viz., 82 cents per bushel; even at that rate the loss amounted to the large sum of $135,300,000. The above is one of the most striking examples of recent years of the immense national importance of plant diseases.

No city man (and even few farmers) is aware of the extraordinary losses due to plant diseases, and hardly ever realizes that in meeting the increased cost of living he contributes his share towards making good the losses from such causes.

It is obviously an important function of the Department of Agriculture to carry on research on plant diseases. The work of studying and endeavouring to control plant diseases is carried on by this division throughout Canada. Our experts are engaged in securing rust-resistant wheat, a wheat of good quality and high yield similar to our Marquis—but immune to rust. It is hardly necessary to emphasize the importance to Canada should such researches be crowned by reasonable success. The work of the Division includes the study of the principal diseases of all farm and garden crops, as well as those of orchards and forests. Every year commendable progress can be reported, but the work is slow. Thus useful knowledge has been obtained from a study of the constitutional diseases of the potato. The inspection service conducted by this Division proves that Canada can produce excellent crops

free from yield-reducing diseases. Such knowledge spreads quickly, and many carloads of certified potatoes leave Canada for other countries, where they are in great demand for seed purposes.

Assistance has been rendered in numerous cases to individual inquirers through the chain of plant pathological laboratories maintained by the Dominion Government in all parts of the country. The division at headquarters has outgrown its present accommodation, and it is hoped that provision for expansion may be possible in the near future in order to take care of the increasing demands for this service. The usual inquiries relating to the eradication of weeds, the identification of poisonous and medicinal plants, etc., were attended to, among other phases relating to economic and agricultural botany.

The Poultry Division

The work of the Poultry Division as now carried on on twenty Branch Farms, as well as at Ottawa, is rapidly increasing. Pedigree breeding is now conducted upon each Farm, and at the Central Farm, and at a number of the Branch Farms, all eggs set are from pedigreed parents.

The increase in incubator accommodation has given greater facilities for carrying on investigational work and for the hatching of early stock. It has also been found possible to do a certain amount of custom hatching.

In this connection studies are being made as to the causes of chick mortality and problems of incubation dealing with fertility, death of the chicks in the shells, etc. The influence of certain feeds on the hatchability and vitality of the chicks is also being investigated.

In the brooding work the value of the coal-burning brooder stove has been further demonstrated, and the colony house has again proved itself best adapted for rearing purposes since it can be removed from place to place.

In the feeding of chicks a number of rations comprising home-mixed grains and commercial feeds were compared as to value and utility, especially during the critical stage in rearing chicks covering the first three weeks of their existence. The results were in favour of the home-mixed rations as to crop and as to percentage of chicks raised. This ration consists of one part each of corn meal, oat flour, shorts, middlings, and beef scrap, with one hard-boiled egg to each pound of the mixture.

In view of the decline in the market price of all poultry products and the high cost of feed special attention was given to the question of cheaper rations for poultry. Some of the experiments under this head made a comparison of skimmed milk and beef scrap. It was found that where the former was available at any price up to 50 cents per hundred, it is an economical substitute for the latter.

Where skimmed milk has been given for drink in place of water, better results have been shown, except during very hot weather when both should be supplied. No appreciable increase in egg yield has been shown by the feeding of wet mash, instead of dry. In the comparison of commercial feeds and home-mixed feeds, a slight advantage in egg yield has been obtained from the latter at a lower cost.

The value of breeding for high production by careful and systematic selection and mating has been further demonstrated. The highest official record for Canada was obtained during the past year at the Experimental Station, Invermere, B.C., where a White Wyandotte pullet gave 325 eggs in 365 days. She is a result of six years' breeding work at that Station. At Lennoxville, Que., a Barred Rock pullet laid 301 eggs in the year. More reliable indication, however, of the value of this breeding work is shown in the vast improvement manifest in the breeding stock throughout the whole Experimental Farms System. The stock has now increased sufficiently to enable the distribution at moderate prices of a considerable number

of surplus pedigreed males, which must materially increase the average egg yield of the flocks where used.

The farm egg and poultry account work is showing good results in the interest being manifested by poultry keepers throughout the country. The same may be said of the survey work being carried on in the province of Quebec. Marked improvement in the conditions of poultry keeping are being noted. Mongrel flocks are being entirely eliminated, housing conditions improved, and winter egg production increased. In this work every effort is being made to co-operate with other poultry organizations and a programme has been drawn up which has been accepted by all these organizations as a working basis for poultry work in Quebec for the next five years.

In the work with poultry diseases a survey of the various provinces is being attempted with a view to obtaining definite information as to the prevalence of certain specific diseases such as tuberculosis and chicken pox.

The egg laying contests continue to be a very interesting and valuable part of the work of the division, and entries for the 1921-22 contest were received months in advance of the date appointed and in numbers which necessitated increased accommodation. A marked improvement in the quality of the stock entered for these contests is noted, and some high records are being made both by pens and by individual birds.

An exhibit was shown at a number of poultry fairs during the winter, and in addition most of the exhibits sent throughout the Dominion by the Division of Extension and Publicity included a poultry section.

The staff of the Poultry Division were able to meet in large part the great demand for lectures and demonstrations, and gave some assistance at short courses wherever possible.

The Bee Division

During the year the Bee Division suffered a severe loss in the death of its former chief, Mr. F. W. L. Sladen, who has been in charge since 1913.

The work of the division has continued to expand. Apiaries were maintained at sixteen of the Experimental Farms. Some of these apiaries have considerably increased in size, especially in the eastern provinces. At Ottawa the number of colonies was increased from fifty to seventy-four, and 9,410 pounds 8 ounces of honey were produced.

Bee breeding experiments were continued and a large number of Italian queens and drones of select parentage were reared at Ottawa. Some of these were taken to Duck Island, in the eastern end of Lake Ontario for isolated mating. Sixty-three queens were successfully mated at the island, of these twenty-five were introduced to colonies at the Central Experimental Farm, the others were distributed to various Branch Farms and private beekeepers. A number of virgin queens of the same stock, also reared at Ottawa were sent out to private beekeepers.

Experiments in the control of swarming by manipulation were also continued as follows:—

(1) By dequeening all colonies preparing to swarm and nine days later destroying all queen cells and introducing young laying queens.

(2) By using an enlarged brood chamber.

(3) By destroying all queen cells every nine or ten days. Methods 1 and 2 are proving very satisfactory. No. 3 requires too much time and labour and is not always successful.

Quick and easy methods for the detection of colonies preparing to swarm were also investigated. The use of a shallow super as an addition to the regular brood chamber appears to be the most promising.

The experiment of wintering two queens in one hive was again tried and proved to be a successful method for producing a larger force of bees in time for the main honey flow and of carrying over a number of spare queens for use in the early spring.

The comparison of wintering outside in packing cases versus cellar wintering is being continued. In outside wintering single, double, and quadruple cases are used.

Beekeeping under northern conditions was further studied at Kapuskasing. A new apiary was started at Fort Vermilion, Alberta, for the same purpose.

Many samples of diseased brood of bees were received and diagnosed during the year and Exhibition Circular No. 105, "Bee Diseases", was issued.

Tobacco Division

Upon the whole the season of 1921 was favourable for tobacco growing. The quality of the Ontario crop, especially that of the yellow flue-cured tobaccos, was much above the average. The length of the leaf of the Quebec crop was less than that of the preceding year but the texture was better and the yields per acre as a rule higher.

According to the figures gathered by the Tobacco Division the production of tobacco in Ontario amounted to about 2,400,000 pounds of yellow flue-cured tobacco, 4,500,000 pounds of White Burley and about 250,000 pounds of tobacco of other types. The Quebec harvest was estimated at about 4,500,000 pounds of pipe tobacco, 1,500,000 pounds of cigar tobacco and about 150,000 pounds of tobacco of other types.

The experimental work at the Tobacco Station at Farnham, Que., was conducted according to the plan adopted in 1919. The most important feature of the experimental work is a study of the use of chemical fertilizers together with barnyard manure, with a view to establishing the best and most economical formula. The results of this work covering a period of three years, will be published shortly.

A new variety of tobacco suitable for cigar wrappers, obtained from a selection of Connecticut Havana, was tried for the first time at Farnham. The texture of Connecticut Havana appears somewhat firmer than that of Comstock Spanish but the yield in weight is a little too low to enable one to recommend its substitution under the prevailing conditions.

The demonstration work at Farnham dealt chiefly with the establishment and care of tobacco seed beds and, in a general way, the results obtained in former years were confirmed. The seed beds on the Experimental Station at Farnham were the only ones fully successful in the whole district.

Special attention was given to efforts to reduce the cost of production of tobaccos and certain modifications were tried in the usual methods of harvesting, curing and preparation for the market (stripping and packing). Owing to the new arrangement adopted in the stripping room on the Farnham Station the price of this operation was reduced by almost one-half. In spite of all efforts, however, the cost of production of a crop of tobacco in the province of Quebec still remains quite high, reaching about twelve cents per pound. One can realize the difficult situation in which the tobacco grower of that province finds himself when one compares this figure as to cost of production with price of the best tobacco crops in that province. The average price paid for the best qualities of cigar tobacco scarcely reached twelve cents per pound, while the price of ordinary pipe tobacco varied from six to eight cents per pound. It is evident, then, that the production of tobacco in the province of Quebec should have been considerably lessened during the last two years since the present low price can only arise from a very considerable over-production.

At the Tobacco Experimental Station at Harrow, Ontario, special attention was given towards solving the problems of fuel to be used in the hot-air curing of the tobacco crop. One of the curing barns at the Station was equipped with a special coal burning furnace. The result although encouraging did not quite come up to hopes and the furnaces will certainly require improvement before they can be recommended to replace the present methods of heating, that is, with natural gas or wood.

Among the varieties of tobacco tried a selection of White Burley made by the plant pathologist of the Tobacco Division showed itself strongly resistant to tobacco root rot. The form of leaf of this variety is very suitable, although it approaches that of the White Burley Standup rather than that of the White Burley Broadleaf. A considerable quantity of seed of this variety was gathered which will permit of its rapid propagation if needed.

A variety of snuff tobacco selected by the same official also showed itself resistant to the above disease.

The requests for seed of snuff tobacco are relatively few and, up to the present, growers producing snuff tobacco have not complained of tobacco root rot. However, it is well to know that in case this disease appears, preparation has been made to meet it.

The comparison between methods of applying chemical fertilizers, that is, either in the drill or broadcast, has confirmed the results of preceding years. It has been well established that markedly better yields are obtained when these fertilizers are sown in the drill.

Among the numerous varieties of White Burley tried at Harrow the White Burley Broadleaf and the White Burley Standup continue to prove themselves superior. The former is to be recommended for open and fertile soils where it is desired to avoid the production of too thick a leaf. The Broadleaf to be recommended for gravelly soils or where the fertility is less but where one may obtain, owing to the greater development in size of the leaf, a sufficient yield in weight of crop. Speaking generally, the Burley Standup tends to produce in the curing barn a clearer colour than does the White Burley Broadleaf.

As to cultural processes in the tobacco plantation, the best results were obtained by commencing cultivation to the depth of six inches and gradually lessening this to two inches.

An interesting feature was noted in connection with the mosaic disease of tobacco. This disease has been observed in some plantations and in each case it was found that the plants came from the hot-beds of gardeners who also grew early tomatoes. This would seem to indicate a close relation between the mosaic of tobacco and of the tomato.

The inspection work of the province of Ontario which is carried on in connection with a programme of co-operative experiments with the best tobacco growers was considerably enlarged in 1921. In a general way the results obtained last year in this work confirmed those obtained on the Harrow Experimental Station itself.

Both in the plots on the Station and in the co-operation plots on the plantations of the tobacco growers, the use of chemical fertilizers together with barnyard manure, or in the case of yellow tobacco culture combined with the ploughing under of fall barley, has given excellent results. Generally the expense of the chemical fertilizer has been repaid to the grower two or three times by the greater value of his crop. Moreover, it has been shown that it is possible to increase considerably the yield in weight of the crop without injuring its quality.

During the winter the laboratory work of the division has made considerable progress. The detailed results of this work will be found in the special report of the Tobacco Division.

The experimental area used by the Tobacco Division at the Central Farm, Ottawa, was devoted in 1921 to the comparison of various selections of Comstock Spanish. These selections were made by the Tobacco Division. This work resulted

in the discarding of one of the more recent selections which was not proving true to type. Among the varieties studied at Ottawa may be mentioned a type of White Burley giving a higher yield, curing with a good colour and the leaves of which are much larger than those of any White Burley cultivated so far in Canada. When one considers that the proportion of weight of rib to that of leaf varies inversely according to the size of the leaf this result is noteworthy.

Two varieties of Maryland selected during the last two years also gave interesting crops, both as to yield and colour. These Maryland tobaccos were fermented in the hot room during the winter and some idea of the aroma obtained. From the evidence so far gathered it is thought that possibly the growing of these varieties in certain parts of Canada may soon be recommended. At the present time the principal aim of the Tobacco Division is to find for this new type a foreign market which will enable it to be grown in Canada in relatively large quantities without causing over-production.

Division of Economic Fibre Production

During the fiscal year under review this division has entered upon a more extended field of experimental work and commercial exploitation for the benefit of the Canadian fibre flax growing industry than has been possible since the creation of a separate division for the study of problems connected with flax growing in Canada. The setback suffered by the destruction of the flax mill at the Central Farm in November, 1920, has been more than compensated for by the acquisition, on lease, of a modern and well equipped commercial mill in the heart of the flax growing district of western Ontario. This mill, situated at Clinton, is used mainly for the demonstration of proper manipulating methods, and in this capacity it is already proving of great benefit to surrounding flax growers. In addition to the mill buildings themselves, some three hundred acres of good flax growing land in the immediate vicinity were leased, and this land was sown to fibre flax immediately. Retting and scutching experimental work was also begun at the mill itself.

It should be stated that the 1921 season was an extremely poor one, and owing to an almost continuous drought flax crop failures were reported from many points. Indeed, no less than one-third of the total acreage of flax grown in Canada was cut for conversion into upholstering tow. The poorness of the seasonal conditions, however, was not peculiar to Canada.

VARIETY TESTS

The extensive variety tests already being carried on at the Central Experimental Farm were continued and elaborated. Five different varieties of flax seed were sown in twenty-five different plots, averaging one-tenth of an acre in extent. Numerous variety tests were also conducted at several of the Branch Farms, notably Summerland, B.C., Lethbridge and Lacombe, Alta., Kapuskasing, Ont., Nappan, N.S., Fredericton, N.B., and Charlottetown, P.E.I. The yield at the last-named station stood second from the top, Nappan, N.S., producing by far the highest yield of all, Kapuskasing being third, followed by the Western Stations which produced the lowest yields.

HEMP CULTURE

Efforts have been made to overcome the difficulty of retting the hemp grown in the Prairie Provinces, and for this purpose the chief of the divison visited Portage la Prairie and district, where he found that there is not sufficient dew to permit of the process of dew-retting being effectively carried on. A solution which is at present receiving consideration is the installing of the equipment necessary to conducting a rapid water and chemical retting process. Several chemical retting processes are being thoroughly investigated with a view to ascertaining definitely which is likely to be the most suitable. Further information on this question will be available later.

TESTS OF MACHINERY

Several newly-invented machines were thoroughly tested, particularly an automatic combined flax breaking and scutching machine known as the "Boby," and a tow scutcher called the "Economic."

One of the latter machines was purchased by the division after preliminary tests, and is still being subjected to exhaustive trials. So far, both machines mentioned have justified the claims made by their respective manufacturers. The Boby is an English machine, while the Economic is manufactured in the north of Ireland.

GRADING

The system of fibre and tow grading and seed inspection already established, which is proving highly successful, will be continued. Inspectors are rapidly becoming more proficient and there is a decided advance in the uniformity of the different men's grading.

MARKETS

In February last the chief of the division visited the spinning mills of New England in order to secure information on present markets. It was ascertained that the United States is not likely to be a potential market in the near future for Canadian flax in any quantities, due to the adverse exchange rate. It was, therefore, decided by the flax growers to turn their attention in the direction of European markets, in which effort they received the co-operation of the Department of Agriculture, the chief of the Fibre Division visiting Scotland, Ireland, Holland and Belgium during the early summer and taking with him a trial shipment of flax baled by the growers of western Ontario. New European machinery and retting methods were also investigated during this visit.

Division of Illustration Stations

The work of the Division of Illustration Stations has been considerably extended. Twenty-two stations were added in the spring of 1921. There are now eighty-six stations in operation, eight are located in British Columbia, twelve in Alberta, twelve in Saskatchewan, thirty-two in Quebec, ten in New Brunswick and twelve in Nova Scotia. Three additional stations were selected, during the summer, in British Columbia and three in Saskatchewan for cropping in 1922.

During the last year there has been more than usual interest taken by the farming public in Illustration Station work. Many requests have been received from farmers' clubs and agricultural societies for the establishment of this work in their districts.

The nature of the work is in itself very variable, as each station is planned to meet the problems of the respective districts. From these stations as centres, the division has endeavoured by practical demonstrations to disseminate information on the undermentioned topics:—

The systematic rotation of crops and the importance of keeping farm accounts.

The adoption of better cultural methods.

Growing clover seed.

The value of tile drainage.

The advantages of after-harvest cultivation.

Introducing mangels and turnips to new districts.

Introducing new and suitable varieties of grain and encouraging the distribution of good seed.

The value of planting selected seed potatoes.

Extending the usefulness and encouraging the growing of corn.

Demonstrating successful methods of growing and harvesting sunflowers.

Advice and direction in grading of the dairy herd.
Summer-fallow treatment.
The profitable recurrence of a summer-fallow in a rotation.
The growing of alfalfa.
Encouraging the production of fall rye.
Introducing western rye into the rotations on the prairie.
Introducing sweet clover to prevent soil drifting and to restore humus to the soil.
Encouraging the growing of a farm garden.
Advice and encouragement in the improvement of the farm poultry flock.

Definite progress has been achieved in demonstrating these problems. It may be of interest briefly to outline what has been accomplished on some of the stations. Now that some of these stations have been in operation for five and six years, quite reliable deductions may be drawn as to the progress made.

VALUE OF SYSTEMATIC ROTATIONS

Illustration Station work commenced at New Carlisle, Que., in 1917. The crop yields for that season were as follow: Potatoes, 110 bushels per acre; oats, 31 bushels per acre; timothy hay, 1½ tons per acre. Since that time we have been once over the rotation and the same fields were in the same crop this year as in 1917. Potatoes yielded 230 bushels per acre, oats 53 bushels per acre, and instead of timothy hay only, both clover and timothy hay were cut; timothy yielded 2 tons and clover hay 2½ tons per acre.

DETERMINING THE VALUE OF TILE DRAINAGE

When the Illustration Station was established at Stanbridge East, six years ago, two four-year rotations were laid out. One rotation was partially tile drained, and the other was carefully surface drained. Five years results show that the under-drained land has given an increased yield of 2½ tons fodder corn per acre, 9½ bushels oats per acre, 1,440 pounds of clover hay and 900 pounds of timothy hay. By keeping a careful account of the cost of production on each rotation, for the five years, it has been found that the tile drained land has given an increased profit of $10.35 per acre per annum.

DISTRIBUTION AND SALE OF SEED GRAIN

Suitable varieties of seed grain have been supplied the Illustration Stations by the Experimental Farm for the province. The uniformity and suitability of these varieties have attracted considerable attention and they are replacing many of the old varieties. The station operators are finding ready sale for their surplus seed. Individual sales amount to from 50 to 800 bushels.

INTRODUCING SWEET CLOVER

Sweet clover contains natural characteristics which render it highly adaptable as a green manure crop for nitrate production. Its deep rooting habit enables it to assist in rendering impervious soils more porous. It also gives promise of being a valuable plant for the humus depleted soils which have a tendency to drift. For the districts where red and alsike clover thrive sweet clover is not being recommended until further data have been made available. Sweet clover has been introduced into some of the rotations on the Illustration Stations in Alberta and Saskatchewan. The crop is being utilized for hay, pasture and ensilage. On the station at Meota, Sask., it was ensiled with good success in a pit silo.

MEETINGS

In order that the communities, where these stations are located, may benefit as greatly as possible by the work, public meetings were held on the illustration field during the summer months. The rotations, cultural methods, crops and varieties grown were discussed with the surrounding farmers. The attendance at these meetings ranged from 30 to 300. Farmers have travelled, to our knowledge, a distance of twelve miles to attend these practical discussions.

Divsion of Extension and Publicity

The activities of the Division of Extension and Publicity during the past year consisted in a continuation of the work carried on during the previous years, together with a number of additional features as herein recorded.

The chief features of the work may be noted briefly under the following heads:—

(1) The collection and supervision of the preparation of material for, and sending out of "Press Articles" to the newspapers of Canada.

(2) The collection and supervision of the preparation of material for "Seasonable Hints."

(3) The issuing of exhibition circulars.

(4) Designing, preparing and placing educational exhibits at fall fairs, seed fairs, corn shows, poultry shows, etc.

(5) Distribution of literature at the various exhibitions visited.

(6) Enlarging of the mailing list.

(7) Attention to applications for literature received through the mails.

(8) The management of a central bureau of lantern slides for the Dominion Experimental Farms system and the preparation of charts for the use of the officers of the Central Farm and the superintendents of the Branch Farms.

(9) The supervision of the preparation of sets of lantern slides with explanatory manuscripts, which are loaned to horticultural and agricultural organizations and other societies and clubs throughout Canada for educational purposes, and attending to applications for and the routing and sending out of these slides.

During the year 1921, 159 "Press Articles" were sent out to Canadian newspapers. An endeavour has been made to have these articles written in a snappy and readable style and confined to 500 or 600 words where possible, as it has been found that most newspapers find more frequent opportunity for using articles of this length than the longer articles. A number of the "Press Articles" sent out during the past year have been in the nature of warnings against new plant diseases and the spread of certain noxious weeds, and have carried at the same time information regarding methods of control.

The publication, "Seasonable Hints," is becoming increasingly popular. A letter received from a rural bank manager, contained the information that many of the farmers in the neighbourhood called frequently for copies of this publication, sometimes asking for it many days previous to the regular date of issue. There were 393,000 copies of the March issue published, which included the English and French in both "Prairie" and "Eastern and B.C." editions.

There were ninety-six Experimental Farm exhibits sent out from the Central Farm and Branch Farms during the year.

The fairs to which exhibits were sent from the Central Farm were as follows:—

Eastern Circuit—

Charlottetown, P.E.I.
Fredericton, N.B.
Woodstock, N.B.
St. John, N.B.
Sherbrooke, Que.
Three Rivers, Que.

Ontario Circuit—

Ottawa, Ont.
London, Ont.
Picton, Ont.
Goderich, Ont.
Peterborough, Ont.
Mount Forest, Ont.
Seaforth, Ont.
Tavistock, Ont.
Napanee, Ont.
Richmond, Ont.
Newington, Ont.
Norwood, Ont.

Western Circuit—

Brandon, Man.
Regina, Sask.
Saskatoon, Sask.
Calgary, Alta.
Edmonton, Alta.
Vancouver, B.C.
New Westminster, B.C.
Victoria, B.C.

Poultry Shows, East—

Halifax, N.S.
New Glasgow, N.S.
Truro, N.S.
Amherst (Winter Fair)
Quebec, Que.
Sherbrooke, Que.
Hull, Que.

Poultry Shows, Ontario—

North Bay, Ont.
Englehart, Ont.
Fort William, Ont.
Sudbury, Ont.

Winter Fairs—

Ottawa, Ont.
Chatham, Ont.
Rodney, Ont.
Tilbury, Ont.
Quebec, Que.

The exhibits staged by the branch Farms and Stations were as follows:—

Charlottetown Experimental Station exhibited at Charlottetown, Summerside, Georgetown, Souris and Egmont Bay; Kentville Station at Windsor; Fredericton Station at St. John, Fredericton and Woodstock; Ste. Anne de la Pocatiere Station at St. Michel de Bellechasse, Montmagny, L'Islet, Kamouraska and Rimouski; Cap Rouge Station at Three Rivers and Quebec; Lennoxville Station at Sherbrooke, St. Scholastique, Richmond and Cookshire; La Ferme Station at Amos; Kapuskasing Station at Sault Ste. Marie, Bracebridge, and Huntsville; Morden Station at Morden and Winnipeg; Brandon Farm at Brandon Agricultural Fair and at Brandon Horticultural Fair; Indian Head Farm at Redvers; Rosthern Station at Prince Albert, and Melfort; Scott Station at Saskatoon; Lethbridge Station at Lethbridge; Lacombe Station at Oyen, Chinook, Youngstown, Hanna, Delia and Big Valley; Invermere Station at Athalmer, Nelson, Nakusp and Creston; Summerland Station at Penticton, Armstrong, Salmon Arm, Kelowna, Peachland, Summerland, Vancouver and New Westminster; Sidney Station at Victoria and Saanichton, and a bee exhibit at a local Fair at Victoria.

The exhibits sent out over the eastern and Ontario circuits featured prominently silos and silage crops, varieties of cereal crops recommended for the districts in which the exhibits were being shown, recommended varieties of fruits, garden vegetables, etc., methods of hatching, rearing, fattening and marketing of poultry, up-to-date methods and equipment in connection with bee-keeping, etc., etc.

The general exhibit designed for the west was prepared at the Central Farm, Ottawa. This exhibit was prepared in such a manner as to be of great educational value to the farmers of the western provinces. Among other things featured were types of silos and silage crops, types of farm buildings, rotations to prevent soil drifting and other suitable grain and forage crops, with recommended varieties of

same, methods of prevention of plant diseases, poultry models, recommended varieties of gooseberries, currants, strawberries, raspberries, celery and other garden vegetables, Canadian-grown vegetable seed, etc., etc. The Branch Farms supplied much of the material used in the exhibits sent out from, and set up by officers from this division.

New exhibit structures were made up and sent out to each of the following Experimental Stations, namely: Charlottetown, P.E.I., St. Anne de la Pocatiere, Que., and La Ferme, Que. Those sent to the first two Stations mentioned were three panel structures, 24 feet in length, while the structure sent to La Ferme was 16 feet in length and consisted of two panels.

It will be readily seen that as most of the larger fairs in Canada were visited and many of the smaller ones, hundreds of thousands of farmers have had the results of the investigational work being conducted by the Dominion Experimental Farm System brought prominently before them. These exhibits have been the means, each year, of bringing large numbers of farmers into close touch with the work of the Experimental Farms, with the result that the numbers of farmers availing themselves of the services offered are rapidly increasing.

Literature was given out upon request by those in charge of the exhibits above mentioned. Mailing cards were kept in view where those interested in particular subjects relating to agriculture could check the subjects upon which they desired literature. These cards have been sent in to the Publications Branch, from which branch the bulletins, pamphlets, circulars, etc., requested have been sent out.

A considerable volume of correspondence has been conducted in giving attention to the applications for bulletins, pamphlets, circulars, etc., which have been received at this office.

During the last year a bureau of lantern slides pertaining to the work of the various divisions of the system has been established in connection with this division. About 1,000 slides have been named, numbered and card indexed. These are used by the officers of the various divisions and the superintendents of the Branch Farms, who may require them in connection with lecture work which they find necessary to undertake. This is already being found to be a great convenience, particularly to the superintendents of the Branch Farms, who are called upon to deliver lectures regarding the results of investigational and experimental work conducted on the Central and Branch Farms. Sets of these slides have already been used by superintendents of Branch Farms from British Columbia to Prince Edward Island.

This division has also prepared, during the last year, a number of charts for superintendents of a number of the Branch Farms and various divisions at the Central Farm on crop rotation, breeding experiments, cereal work, etc., etc. These are found very useful by the speakers who have used them in placing before the farmers, in a very clear manner, information regarding the work being conducted.

During the latter part of 1921 arrangements were made for the preparation of sets of lantern slides, with accompanying lectures, for loaning to agricultural and horticultural organizations and other societies and clubs interested in the subjects treated. Sets have already been prepared on two subjects as follows: "Planting and Care of the Farm Home Grounds," and "Profitable Poultry Keeping." Six sets of each subject have been made up. There are between fifty and sixty slides in each set and the lecture consists of about twenty-five typewritten pages of manuscript which is read as the slides are projected on the screen. No rental charge is made, the only cost to the user being the express charges one way as this division pays the return charges. These slides were ready to be sent out on February 14, and during the six weeks intervening between that date and the last of March, these slides were used at over forty meetings. The records which have been kept regarding the use of these slides show that the average attendance at the meetings where the

slides have been used has been 148. Many letters of appreciation have been received from the various horticultural and poultry organizations which have made use of these slides.

Numerous other opportunities for extension and publicity work have presented themselves during the year. A number of collections of models of various kinds of farm buildings have been sent out to agricultural workers in charge of short courses which have added greatly to the interest and value of these courses. Collections of seeds have been put up in bottles and properly labelled which have been used in connection with short courses and at meetings held in different parts of the country where seed selection and seed improvement were the subjects under discussion. A few small collections of flax, grains, and forage plants have been placed in attractive cases and set up in a number of schools and college museums during the year. During the past winter a number of poultry house models were prepared and sent to Alberta in conection with meetings which were being held in some of the newer districts of that province. A number of other requests of a similar nature have been given attention during the past year.

Experimental Station, Charlottetown, P.E.I.

Following a mild and open winter, the spring of 1921 was earlier than usual. Light spring rainfall followed by drought until the middle of July caused a short season for small fruits, a light hay crop, and a grain crop well filled out but short in the straw. The autumn was favourable for work, a larger amount than usual of fall ploughing being done.

The Ayrshire breed of cattle is kept at the Station, the herd now consisting of eighteen head.

Feeding experiments with steers were carried on during the winter in a comparison of different rations. They were divided into four pens and the average profits per steer were: Pen I, $11.96; II, $16.86; III, $14.47; IV, $15.99.

The poultry work at the Station is devoted mainly to Barred Plymouth Rocks and Single Comb White Leghorns. All birds are trapnested throughout the year, and Records of Performance are kept. The best layers are mated with males from high-producing stock.

The third Prince Edward Island Egg Laying Contest closed on October 28, 1921, and the fourth contest was started on November 1, 1921, with twenty pens.

With bees, the season of 1921 was a poor one, owing to drought and a shortage of clover. Three hundred pounds of surplus honey were produced.

In field crops the yields per acre were as follows:—

Crop	Acres	Bush.	Lb.
Wheat	3.91	28	2
Oats, Banner	5.9	47	23
Barley, Charlottetown No. 80	1.	46	10
Potatoes	1.5	177	14
Mangels	4.5	578	23
Turnips	4.9	586	24
Clover hay	16.17	...	3,145
Timothy hay	4.77	...	4,057

Some four hundred cultural plots were under operation and some valuable data were gathered. The regular variety testing of cereals was carried on in duplicate plots and multiplying fields of the best sorts were grown and the seed registered and sold to growers.

Variety tests were also carried on with Indian corn, sunflowers, and roots, and two hundred and fifty pounds of Bangholm Selected Swede turnip seed were produced from club-root-resistant seed obtained from Sweden.

Work with pasture and hay mixtures was continued, three more acres being devoted to this purpose.

With fruits, the orchards came into full bearing and produced excellent crops, but the crops of small fruits were lessened owing to drought. With vegetables, in addition to extensive variety tests, disease-free stock of Irish Cobbler and Green Mountain potatoes was multiplied for distribution.

During the year a machine shed and carpenter shop, 25 feet by 80 feet was erected west of the main barn, and a few minor repairs and improvements made.

At the close of the year, the area of the Station was increased by the purchase of what is known as the "Blake" property, consisting of a residence, farm buildings, farmer's house, and fifty-one acres of land.

During the year a number of breeders' and growers' picnics were held at the Station, and the superintendent addressed a number of Farmers' Institutes and Short Courses throughout the province, attended several live stock conventions, was present at all the county exhibitions and many school fairs, acting as judge in many cases. Station exhibits were prepared and displayed at all county and district exhibitions and at the Provincial Exhibition. These attracted a great deal of attention and much interest was shown therein.

Experimental Station, Fredericton, N.B.

THE SEASON

The winter of 1920-21 was an exceptionally fine one and was followed by a very early spring. Seeding was begun on April 30. Apple trees bloomed ten days earlier than usual, and growth during the early spring was very rapid. May, June and July were very dry. As a result of this late planted potatoes and turnips germinated unevenly and slowly, and hay and grain were only sixty per cent of a crop. In August cooler weather and occasional showers promoted the growth of late grains, corn, potatoes, roots and fruit crops. Good growing weather prevailed during September and October. The crops were harvested in good condition. Winter set in early in November and although fine, was more severe than the preceding winter.

LIVE STOCK

Live stock on the Station are in good condition. Five cows are entered in the Record of Performance. One of these, a Holstein cow, Helen Clover Ormsby, has produced 9,453·1 pounds of milk, testing 3·3 per cent fat, in the first 140·5 days of her first lactation period. Three first cross Shorthorn cows completed their third lactation period and produced an average of 5,559·2 pounds of milk and 212·1 pounds of butter fat in 279.2 days, as compared with 5,317.6 pounds of milk and 219.6 pounds of butter fat produced in 279 days by their dams. Five first-cross Ayrshire heifers completed their first lactation period and produced an average of 5,597·4 pounds of milk and 249·4 pounds of butter fat in 335 days, as compared with 5,862·4 pounds of milk and 228·7 pounds of butter fat produced by their dams as mature cows in 294 days.

FIELD HUSBANDRY

Crop yields were below the average. The average yield per acre of the different crops was as follows: Hay, 1.67 tons; oats, 36.1 bushels; spring wheat, 14.1 bushels; swede turnips, 758·6 bushels; mangels, 463 bushels; ensilage corn, 13 tons; sunflowers, 12 tons 755 pounds; oats, peas and vetches, 3 tons 327 pounds.

HORTICULTURE

Horticultural crops yielded below the average. There was a heavy drop of apples during the summer, but the fruit harvested was very clean and of good colour. The average yield of strawberries was only 3,843 quarts per acre. Bush fruits were not half a crop. Potatoes were very free from blight and yielded 98·5 barrels per acre. An experiment with potatoes to determine the value of immature seed showed an average increase of 83·4 bushels per acre for twenty-seven varieties and an average decrease of 76·2 bushels per acre for twelve varieties. The net average increase for thirty-nine varieties using immature seed was 34·4 bushels per acre.

CEREALS

Variety tests were conducted with cereals. Six 1 30 acre plots of fall wheat came through the winter in good condition and yielded from 25 to 37½ bushels per acre.

FORAGE CROPS

Variety tests were conducted with ensilage corn, turnips, mangels, carrots, sugar beets and sunflowers. An extensive experiment was begun with grasses, clover and alfalfa.

POULTRY

The first New Brunswick Egg Laying Contest ended October 30, 1921. It is worthy of note that the average production per hen in this contest was second highest in Canada. A second contest began the 1st of November.

ILLUSTRATION STATIONS

Nine Illustration Stations are now established in the province. These were supervised by the assistant to the superintendent at this Station in co-operation with the chief supervisor at Ottawa.

EXTENSION AND PUBLICITY

An Experimental Farm booth displaying field and garden crops was arranged at the St. John, Woodstock and Fredericton exhibitions.

Experimental Farm, Nappan, N.S.

The crop season for 1921 was earlier than usual; farming operations began on May 6, and were general by the middle of May. Very dry weather prevailed throughout the entire growing season, the total precipitation recorded for the six growing months being 10.51 inches. Most of the crops suffered from the drought and this was most noticeable on poorly tilled fields but wherever a systematic rotation of crops had been followed, the yield was up to the average. Throughout the district the crops were below the average but were harvested in excellent condition.

At this Farm, the acreage under crop was as follows: Hay, one hundred and ninety-four acres; roots, eighteen acres; corn, five acres; sunflowers, four acres; oats, peas and vetches, four acres; mixed grain, nine acres; barley, three acres; oats, four acres; wheat, three and one-half acres; potatoes, five acres; test plots of grasses and clovers, five acres; vegetables, strawberries and bush fruits, four acres; orchard, twenty acres; corn for seed, three-quarters of an acre.

The average yields of farm crops were as follows. Wheat, 20.23 bushels; oats, 36.5 bushels; barley, 17.16 bushels; mixed grain, 23 bushels; ensilage, corn, 4.11 tons; sunflowers, 10.05 tons; turnips, 428.26 bushels; clover hay, 2.09 tons per acre.

As a result of the dry weather, which was accompanied by extreme heat, the crop of small fruits was poor; tree fruits were below the normal crop but were of good quality.

Experimental work in the various branches was continued and as many new projects commenced as funds available would permit. Special attention was given to work in variety tests of potatoes and in cost of production. Very satisfactory data were obtained.

The poultry work, both in the plant and in the contest showed marked progress. Two hundred birds were kept on the plant and two hundred and twenty-two were entered in the contest. The average production per bird and the average cost of feed required in the production of one dozen eggs were as follows: Barred Rock hens, 140 eggs at a feed cost of thirty-three cents per dozen; Barred Rock pullets, 144.2 eggs at a feed cost of thirty cents per dozen; White Leghorn pullets, 151 eggs at a feed cost of twenty-six cents per dozen. In the contest the average production was 130 eggs per bird at feed cost of 28.3 cents per dozen.

Good progress was made in all branches of live stock work during the year. Much data was collected on cost of production in all lines except the finishing of beef cattle but, owing to the shortage of stable room, this work had to be discontinued for the present.

The pure-bred Guernsey herd made a very creditable showing this year. This herd now consists of eight mature cows, three two-year-old heifers, three heifers under one year and two males. The average butter-fat test of the herd is good, being 5.39 per cent.

The pure-bred Shorthorn herd, which was established in 1920, made a fair showing during the year. This herd now consists of seven mature cows, one three-year-old, one yearling heifer, a two-year-old herd bull, and three young bulls, which are for sale for breeding purposes.

The grading-up experiment was continued and most satisfactory results obtained. This herd has now some very promising young heifers. Last year two-year-olds reached the 9,000-pound mark.

In cost of production work last season data were collected on—milk production, rearing of grade dairy heifers to one year and two years of age; rearing pure-bred and grade sheep and returns from these, cost of raising little pigs to six weeks of age, cost of pork production.

Some thirteen acres were summer-fallowed in order to kill weeds and prepare the land for cultural work which is to be started in the spring of 1922.

General repairs to all farm buildings were carried on during the summer. A new reservoir was built, a new water line put into one of the farmhouses, the repair work on the boarding-house completed and the house painted.

During the summer an exhibit was put up at a number of exhibitions and small fairs. The superintendent and assistant attended many agricultural meetings and acted as judges at as many fairs and exhibitions as possible throughout Nova Scotia and New Brunswick. Many excursions visited the Farm during the season.

Experimental Station, Kentville, N.S.

This Station, established in 1912, has an area of 430 acres of which 65 acres are in fruit, principally apples. The large fruit interests centered in that section of Nova Scotia call for experimental work with fruits, and the endeavour has been to specialize in experimental effort to that end. Orchard fertilization, spraying, and

general care are the main features of the work. The various fruits such as apples, peaches, pears, plums and small fruits of all the desirable varieties are under test.

Corn silage and clover hay are the principal fodder, and oats the leading cereal, crops grown. The rotation followed is corn, or a similar hoed crop, oats and clover. The experiments with fertilizers and limestone, which have been so extensively carried on by this Station, have been confined to these crops under the three year rotation system. Clovers and grasses and mixtures of these have been extensively tested with the hope of improving the general hay production. The work with potatoes aims at the production of disease free stock of Green Mountain and Irish Cobbler for seed purposes.

A Shorthorn herd of sixty cattle bred and handled with particular regard to the development of the dual purpose animal constitutes the most of the work with stock. Steers are purchased in the fall, and winter fed with comparative rations. An effort has been made to develop a good producing strain of White Wyandotte and Barred Plymouth Rock poultry. The apiary, consisting of sixty colonies of bees, has as its object the assisting of fruit growers in the more general use of the honey bee to insure a better set of fruit, and to promote the honey industry.

Experimental Station, Ste. Anne de la Pocatiere, P.Q.

METEOROLOGICAL OBSERVATIONS

The temperature for the months of April, May, June and July were very much warmer and drier than the corresponding months of the ten years previous. This lack of moisture caused a light growth of hay and grain with early maturity. The grain was all harvested at this Station on August 27.

The precipitation during the months of August and October was greater than that of former years and proved very beneficial to the crops of potatoes, corn, sunflowers and roots, which surpassed former yields. This late precipitation helped materially to prepare the land for late summer and fall ploughing. The winter was relatively milder and the fields were bare throughout. The spring of 1922 has opened fairly early but seeding is likely to be later than last year.

HORSES

The stud is composed of eight pure-bred Percheron mares, two grade Percherons, three two-year-old pure-bred Percheron females, one two-year-old pure-bred Percheron stallion and two grade Percheron yearlings. The aged horses are used for farm work and breeding. Data to determine the cost of rearing a colt from birth to three years old are among those being collected.

DAIRY CATTLE

The dairy herd is in good condition and is composed of pure-bred and grade Ayrshires. The herd included on March 31, twenty-seven cows and twenty-three immature animals of which 75 per cent are pure-bred Ayrshires.

The herd is used to collect data to determine the cost of milk production and for grading-up experiments. Young stock is used to collect information on the cost of rearing from birth to the time the heifers are in milk. The good pure-bred males are sold in the district to improve the grade herds.

SHEEP

The flock of Shropshires which had been established at this Station was disposed of and a good selection of Leicesters from the Cap Rouge Experimental Station was transferred here. On March 31 the ewes were in good condition and a good crop of lambs is expected.

SWINE

The swine herd is composed of twelve pure-bred Yorkshire sows and one boar. The sows are mainly kept for the distribution of better pigs in the valley but experiments on the cost of producing pork and methods of housing are conducted. Most of the sows are wintered outside, a method which has given better results than wintering cattle.

ROTATION OF CROPS

So far, three systems of rotation have been followed at this Station, namely, rotations of three, four and five years.

The work in horticulture is subdivided into two sections, namely, the orchard and small fruits and vegetable gardening. The orchard contains over 1,100 trees and gives great promise. The oldest part is now nine years old. The trees have made good growth with few exceptions. The trees are sound and there is indication of a heavy bloom this spring.

The small fruits include varieties of red, black, and white currants, gooseberries and raspberries.

In the vegetable garden, tests are made to determine the best varieties for the district of potatoes, sweet corn, tomatoes, beets, cabbages, cauliflowers, squash, melons, lettuce, onions, etc., etc.

A small start was made during the year in the testing of different varieties of grain. Good results were obtained with the exception of the test with oats, which were badly affected by the extreme drought of the early summer.

Variety tests were carried on with mangels, swedes, corn for silage, sunflowers and with clovers and grasses. The roots and corn did exceptionally well, but the clover and grasses did not do well. Several varieties owing to the extreme drought, gave a very poor yield, while others were winter killed. To date, alfalfa, alsike, white Dutch clover, western brome grass, tall oat grass and orchard grass are the clovers and grasses that best withstood the drought of last summer and the winter killing.

POULTRY

Barred Plymouth Rocks, White Wyandotte and Rhode Island Reds have been kept at this Station during the year, but in future the Rhode Island Reds only will be retained.

Experimental work was carried on to determine the hatchability of eggs when hatched artifically and naturally as well. Feeding experiments are also conducted.

BEES

Three hives only had been wintered in 1920. These came out in good condition in the spring of 1921. To add to this number twelve were bought and increased to twenty-seven during the season. They wintered in good condition with the exception of one hive.

Owing to the very dry summer, the honey crop in the valley was lighter than that of former years. The Station hives produced an average of slightly over 70 pounds per hive.

The extension and publicity work was confined to the writing of a few articles to the Farm Press giving lectures at short courses and other meetings. The superintendent also co-operated in the short courses on the bacon hog given to the agronomists of the province at Montreal.

Four fall fairs were visited in this valley with an exhibit containing models of farm buildings and collections of grains, roots, vegetables and fruits. Several thousands have admired these exhibits. Many questions were answered and considerable literature distributed.

Close to 200 bushels of seed wheat were sold this spring in this valley, 200 pounds of swede seed were distributed, mainly through the agricultural clubs in several localities, in order to induce the farmers to grow more roots.

This Station being without a superintendent during the summer, no farmers' days or excursions were organized, but, nevertheless hundreds of visitors came to the Station during the year, where they were made welcome and every possible attention shown them.

Experimental Station, Lennoxville, Que.

THE SEASON

From May right through to September the weather was very dry, hay yields being low in consequence, and live stock suffering from shortage of pasture and water; grain harvests were light, but corn and sunflowers yielded well.

LIVE STOCK

A number of the Ayrshire herd cows entered in the Record of Performance qualified, while others will do so by the end of this lactation period. Six Jersey females were purchased to form the nucleus of a small herd. It is hoped to improve the Shorthorn herd in milking qualities by the use of the bull "Weldwood Lassie's Lad," whose dam, "Jean Lassie," has an official record as a three-year-old of 13,891 pounds of milk. Different lines of steer-feeding experiments were carried on, and for this purpose ninety well-bred two-year-old stockers were purchased. Experiments were conducted in early versus late grain feeding, ground elevator screenings versus corn, oats and screenings, and loose versus tied. Results are to be found in the Station's detailed annual report.

Experiments were carried on in lamb feeding, and much improvement was noted in the size, clip and quality of wool, demonstrating what can be done by the use of good registered sires in the flock. Feeding experiments were carried on with swine, and quite a number of pigs were sold to the farmers of the district for breeding purposes. Experiments in breeding with a view to increased egg production were carried on with the poultry, together with investigations as to the cost of hatching, brooding, rearing and feeding during different seasons. Demonstration work also was carried on regarding poultry house construction, methods of feeding, fattening, selection and sanitation. Fifty birds made records of over 200 eggs each, the highest being 301, while the average per bird for the whole flock was 170. The average for 90 Barred Rocks was 205 eggs.

HORTICULTURE

Experimental work was continued with tree, bush and small fruits as well as with vegetables. During the next few years it is proposed to conduct extensive variety tests with apples for winter hardiness. It is expected that several new varieties of plums will prove satisfactory for the district. The strawberry plantation attained fine condition, despite the drought, and produced a fair crop. Twenty-seven different variety tests of vegetables were conducted, and sixteen cultural experiments.

FIELD HUSBANDRY

Corn and sunflowers for silage and roots did very well at the Station during the year under review, but the yields of hay and grain were below the average. Experiments were conducted with a view to ascertaining the effect of supplementing barnyard manure with fertilizer for corn and sunflowers. Twenty-eight acres of land were summer-fallowed in preparation for plot work with fertilizers and for cultural tests. Two fields have been set aside for a drainage experiment. Three-year, four-year, five-year and six-year rotations were compared side by side, and an area is also being set apart for a pasture experiment, where different methods of seeding, cultivation and fertilizing will be tested.

FORAGE PLANTS

A good stand of perennial red clover was established. Compton's Early ensilage corn made a good showing, as also did sunflowers; seventeen varieties of swede turnips were tested and produced a fairly good crop, while four varieties of sugar beets were grown, yields recorded, and average specimens of each forwarded to the Dominion Chemist for analysis as to sugar content.

GENERAL

A new cottage was built on the Station, also a scale building and an implement shed. Nine-hundred and fifty feet of water pipe were laid, 290 rods of new road were constructed, over 600 rods of new fence, and nearly 5,000 feet of under-drainage were laid. Some land clearing was also undertaken. The Station exhibited at the Great Eastern Exhibition, Sherbrooke, at Richmond, St. Scholastique, etc.

Experimental Station, Cap Rouge, Que

THE SEASON

Weather.—The six months from May to October inclusive, during which plants grow in Central Quebec, were warmer, dryer, and brighter than the average of the last ten years for the same period; the main feature, from a meteorological point of view, was the prolonged drought of the early part of summer.

Crops.—Corn for silage, field peas, potatoes, apples, plums, sweet corn, tomatoes were very good; barley, flax, oats, wheat, cherries, grapes, raspberries, cabbage, ornamental plants were good; field roots, beans, currants, gooseberries, strawberries, celery were medium; hay, also pastures until late summer, were bad. But this refers to Cap Rouge only, as precipitation is undoubtedly one of the main factors in the growth of crops, and local showers, during a prolonged drought, sometimes give a fair crop to a locality distant only a few miles from where a total failure exists.

LIVE STOCK

Horses.—At the end of the fiscal year, there were seventy-nine, all pure-bred French-Canadians with the exception of four. Only ten were at Cap Rouge, the other sixty-nine being used for experimental breeding and housing at the Horse Farm, St. Joachim, Que. Sixteen foals were raised and twenty-six mares are due to foal during the spring of 1922.

Cattle.—The herd, on April 1, 1922, consisted of sixty-six head, all pure-bred French-Canadians. More females have qualified for Record of Performance at Cap Rouge than in any other herd of the breed. These cattle are kept for experimental breeding, feeding, housing, and management.

Sheep.—All the Leicester sheep had to be disposed of, during the present fiscal year, on account of lack of land. Fifty ewes and three rams, all registered Leicesters, were sent to the Dominion Experimental Station, Ste. Anne, at the end of 1921.

POULTRY

Laying Contest.—The third Laying Contest for the province of Quebec is being held at Cap Rouge; sixty Barred Rocks and 110 Rhode Island Reds about divided honours, whilst thirty of the first-mentioned breed were entered by the Station, but for registration purposes only.

Farm Flock.—About 300 Barred Rocks are kept, for experimental breeding, feeding, and housing. A pedigree system was introduced a few years ago which will be a valuable help in throwing some light on the very complicated problem of forming families of heavy layers.

FIELD HUSBANDRY

Crop Management.—Work was continued with projects relating to cost of different field crops, rotations, and a comparison of roots, silage, and hay for the economical production of milk.

Soil Management.—The main experiment is an investigation into the relative merits of summer, autumn, and spring ploughing for silage corn.

CEREALS

Variety Tests.—These are conducted with grains which can be grown in the district. For central Quebec, Huron wheat, Manchurian barley, Banner oats, Arthur peas, Norwegian beans, Novelty flax seem to do best.

Selection.—Selections of Manchurian barley and of Huron wheat, made at Cap Rouge, have now shown decided superiority, for yield, over any other strain or variety of these grains tried at the Station during eleven years.

FORAGE CROPS

Variety Tests.—Results of work covering over a decade show that, for this district, the following can be recommended, until better ones are found: Longfellow corn, Improved Short White carrots, Half Sugar White mangels, Good Luck swedes.

Selection.—Conducted with Quebec Yellow corn, Good Luck swedes, and Grimm alfalfa.

Cultural Work.—Several mixtures of grasses and clover are being tried for hay and pasture, whilst different methods of producing red clover seed are compared.

HORTICULTURE

Fruits.—There are being conducted variety tests of apples, cherries, plums, grapes, currants, gooseberries, raspberries, strawberries, also breeding work with most of these, besides such investigations as cost of establishing an apple orchard, comparison of cover crops for same, and methods of planting strawberries.

VEGETABLES

Over fifty projects receive attention, in vegetables. There are variety tests and breeding work with asparagus, beans, beets, cabbage, carrots, cauliflower, celery, corn, onions, peas, potatoes, rhubarb, tomatoes, turnips, also cultural work with the most important of them.

ORNAMENTAL PLANTS

There are over seven hundred varieties of annuals, perennials, bulbs, shrubs and trees under test.

EXHIBITIONS

Horses, poultry, grain, forage plants, fruits, vegetables, flowers were exhibited in the regular classes at Three Rivers and at Quebec provincial exhibitions. One hundred and fifty-three prizes were won, including diplomas on best French Canadian stallion, on best French-Canadian mare, and on best two collections of apples.

PUBLICITY

Articles were prepared for the press, also for "Seasonable Hints," and bulletins were distributed at exhibitions.

VISITORS

Over 4,000 visitors came to the Station during the twelve months.

EXPERIMENTAL STATION, KAPUSKASING, ONT.

The spring of 1921 was early, work on the land commencing on May 3. The month of June was dry and hot, checking the growth of grain and hay crops, but good rainfall in July stimulated an excellent second growth of hay and late sown grain crops were greatly benefited. October was fine and dry with plenty of moisture in the soil, which was favourable for fall work on the land.

The dairy herd at the Station consists of three grade Holstein and ten grade Ayrshire cows, ten head of young stock, and one pure-bred Ayrshire bull, and the beef herd consists of fifteen Shorthorn grade cows, fifteen head of young stock, and one pure-bred bull. Cheap pasture is furnished by the stump land of the farm, which is seeded down to grass and clover.

With swine nine pure-bred Yorkshire sows are kept for breeding purposes. The flock of sheep consists of eleven pure-bred Shropshire ewes, eleven ewe lambs, and one Shropshire ram. The lamb crop this year was satisfactory, twenty-three lambs being raised from fifteen breeding ewes.

At present there are sixteen horses on the farm, these being kept for the farm work only, no experimental work being carried on.

In field husbandry the year 1921 was notable for the fact that late grains gave heavier yields than did those early sown, owing to drought and frost early in the season. Forty-three acres of oats yielded an average of 35 bushels per acre. Seventeen acres of barley yielded an average of 37 bushels per acre. Hay gave an average of 1·3 tons per acre from 122 acres of meadow. Sunflowers were the most satisfactory ensilage crop, five acres producing an average yield of 19 tons 1,200 pounds per acre. The average yield of roots was low, mangels giving 347 bushels per acre and turnips 368 bushels, while carrots yielded 266 bushels per acre.

An excellent opportunity was afforded for comparing cost of ploughing with a tractor and with horses. The cost of ploughing with the tractor was found to be $3.85 per acre, while with two horse teams it was $3.90 per acre on improved land, and $6 per acre for breaking new land. Only two acres of land were cleared of stumps during the year, but forty-five acres of recently cleared land were broken.

Twenty acres of uniform soil are devoted to an experiment in land drainage. Half of this area is underdrained, the remainder left undrained, to determine the effect of underdrainage on crop production.

The work in horticulture consisted of variety tests of vegetables, small fruits and flowers. The orchard is making slow progress. The trees were set out in 1917 and transplanted to their present location in 1918. One plum tree has commenced to bloom, but no fruit set. Very good yields of raspberries were obtained and a number of varieties of strawberries were set out this year, and a good crop of fruit was obtained from some mixed varieties.

Variety tests with cereals were carried on. In spring wheat the largest yield was obtained from Huron, in barley from Manchurian, in peas from Canadian Beauty. One acre of flax was grown which matured in eighty-nine days, and although checked by drought, gave fibre of good quality and five bushels and thirty pounds per acre of seed.

A commencement was made this year with poultry. One permanent poultry house was built and three portable colony houses.

A new silo was put up during the year, also an office building. A five-ton Fairbanks scales were set up and electric lights were installed in all the Farm buildings, with the exception of the poultry houses and the piggery.

An exhibit from the Station was made at the fall fairs at Sault Ste. Marie, Bracebridge, and Huntsville, and seemed to be much appreciated by the large crowds which attended each fair.

Experimental Station, La Ferme, Que.

The season of 1921 was very favourable. The rainfall during the growing period was sufficient to permit of vigourous growth, but the fall weather was rather wet, rendering root harvesting difficult and delaying fall ploughing. The snow had completely disappeared by April 20 and the first cultural operations were done during the early days of May. The first grain was sown on May 10, some days earlier than the preceding year.

The crops on the Station were as follows, being named according to quantity and quality of yield: Very good: sunflowers, wheat, oats, peas, potatoes, cabbage, citrons, pastures, lettuce. Good: hay, annual flowers, and cucumbers. Medium forage beets, carrots, forage crops, corn for ensilage, muskmelon, and beans. Very small yield: table corn, tomatoes, and onions.

The dairy herd is composed of seventeen head at present, namely, one Ayrshire bull, one registered male calf, eight milch cows, of which two are purebred Ayrshires, and seven calves of various ages, one of them being purebred. This herd is being used in a grading-up experiment in which a purebred bull is used in order to show how the succeeding generations improve in production. Records of feed and cost of milk production are kept. To raise a calf to its time of first calving has been found to cost $103.37.

There are nine work horses on the Station and two drivers. No experimental work has been carried on with these, but close account is kept of feed consumed and work done. Figuring feed at actual cost, it was found that a horse working ten hours per day at farm work could be fed for fifty-eight cents a day.

The flock of sheep at the Station is made up of twenty-five sheep over a year old and eighteen lambs one year old, all common grades, and two registered Cheviot rams. A grading-up experiment is also being conducted with these. There is a notable improvement in the first generation and the second generation shows almost all the characteristics of the Cheviot breed. An experiment has been commenced with the sheep to determine whether it is best to mate the lambs at six months or at one and a half years of age

The herd of swine at present is made up of four brood sows and one boar. Part of the pigs raised were sold to farmers for breeding purposes and the others were reserved for feeding experiments.

In poultry, the Barred Plymouth Rock is the breed kept. Feed and laying records are kept, but so far no experimental work has been commenced. It is interesting to note, however, that fifty pullets sent here from a selected flock at the Experimental Station, Lenoxville, laid, during the months of November, December, January, and February, an average of twenty-eight eggs each, while pullets coming from an ordinary flock gave an average of 12.25 eggs for the same period. During the year, sixty-five acres have been cleared and were sown to oats, which were cut for green feed.

The Station made an exhibit at the Amos Fair, composed of model poultry houses, trap nests, root cellar, and showing samples of sunflower ensilage, Indian corn, oats, and peas, with a table comparing yields and analyses. This attracted a great deal of attention.

During the year, a wagon shed was built, the barn was repaired and the windows and doors placed therein. It is hoped to remodel this into a cow barn next year.

Experimental Farm, Brandon, Man.

The total rainfall for 1921 at Brandon (22.55 inches) was the largest since 1896 and yet crops suffered seriously from drought. This seeming contradiction was due to bad distribution; there was heavy rain in the spring, and September was the

wettest on record. However from June 20 to August 4 there was no effective rainfall, there being only light showers that never got through the dust. This made poor filling of grain crops and very early maturity. The abundance of moisture early in the season had made the plants shallow rooted, so that they did not stand the dry weather at all well.

The breeding work with dual-purpose Shorthorn cattle has been continued. The uniformity of type of the herd has been improved in recent years. Records of the amount and cost of milk production are kept. An experiment was conducted in comparing sunflowers with corn for ensilage. Milking cows and growing heifers were used for this experiment. With both types of stock the corn ensilage gave better results, both in the gains made in weight and in the readiness with which the feed was eaten. However, the sunflowers gave sufficiently good results to show their value for silage purposes where corn is not a safe crop.

An experiment in steer feeding was started in the fall of 1921. Two lots of steers, one a little higher grade and more expensive than the other, are being compared to determine which is the more profitable type to feed.

Breeding work with Yorkshire swine was continued and also cross breeding experiments undertaken, using Yorkshire dams and Yorkshire, Berkshire and Duroc Jersey sires. Feeding experiments with pigs have been continued, a test having been made in regard to the use of correctives in addition to a regular grain ration for winter feeding.

The test in comparing Shropshire, Suffolk and Oxford rams as sires in an Oxford grade flock has been in operation several years. The get of the Suffolk ram have again been the heaviest lambs in the fall.

Clydesdale horses are kept and some colts raised. The cost of feeding horses is recorded.

The experiment in crop rotations started in 1911 is one of the main features of experimental work. Very valuable information has been compiled on this subject which is particularly useful at the present crisis in agricultural affairs in this province. Many cultural experiments to determine the best methods of performing the various farm operations are being conducted. These experiments have been extended in 1921 to cover more fully the growing of forage crops, such as corn, sunflowers, sweet clover, alfalfa, etc. Data have been obtained on the cost of producing farm crops of all the kinds commonly grown in Manitoba.

The usual experiments in the testing of varieties of grains, grasses and forage crops have been repeated and extended to include new and promising sorts. Information is available to inquirers as to the best varieties in all lines of farm crops.

Horticultural experiments include variety testing of vegetables, as described above for field crops and the same remarks apply. There are also extensive tests in regard to the best methods of growing the commoner and more important kinds of vegetables. Experiments with fruit, flowers, hedges and shade trees are also conducted.

The Barred Rock and White Wyandotte breeds of poultry are kept, and breeding work is carried on to improve the egg laying abilities of the fowl. Very satisfactory results along this line have been attained. Experiments in poultry raising that have been conducted include the comparison of pullets vs. old hens as egg layers and the testing of incubators and brooders and tests in housing poultry. The Manitoba egg laying contest has been conducted for the second year. Twenty-two pens from various parts of Manitoba were entered and some good records made. The best pen (ten pullets) laid 1,838 eggs in the year.

Experimental Station, Morden, Man.

Much effort has been put forth in improving the general condition of the farm. New roads have been opened up and crowned with gravel. The general field work has been done with an aim of freeing the soil of perennial weeds and of viable weed seeds. Rotation work was commenced by allotting 37·6 acres to the four-year Rotation "C". A further 60-acre area, which has been down to Western Rye hay, has been reserved for other rotations and one-half of this field will be, in 1922, devoted to Rotations "D" and "G".

A large lawn was seeded and a good sward was developed by autumn of 1921. Ornamental trees and shrubs were planted on the eastern border of the lawn.

There were nearly thirty acres of certified seed potatoes grown. The purpose of this work is to make available for growers of potatoes, foundation seed stock of first-class quality.

Variety testing was done with fruits, cereals, field corn, and vegetables. Special cultural work was used in the growing of tree fruits, white beans, watermelons and musk melons.

The herd of Ayrshire dairy cattle did well. The two cows in the Record of Performance test qualified with satisfactory yields; Greenbank Lottie 2nd giving 12,241 pounds milk with 568 pounds butterfat, and Beauty of Elm View giving 11,458 pounds milk with 479 pounds butterfat.

The breeding up of a Hampshire grade flock of sheep by the use of pure-bred Hampshire rams of good type on a nondescript flock of range prairie ewes has seen further improvement.

The poultry department has grown and there are now at the Station pens of the two general purpose breeds, Barred Plymouth Rocks and Rhode Island Reds.

Work with bees has commenced on a considerable scale. The season 1921 proved a good one for honey.

Experimental Farm, Indian Head, Sask.

The crop year of 1921 was not a profitable one for grain growers in this district, since rust and saw-fly damage together with heavy fall rains at threshing time lowered both the yield and the quality of the grain crop very seriously. Forage crops, however, were above average. Seeding commenced during the last week in April and growth was very rapid. Harvest weather in August was ideal, but wet weather in September delayed threshing and prevented a great deal of fall ploughing being done. The moisture condition of the soil, however, for the spring of 1922 is excellent.

There are thirty-one horses on the Farm, twenty of which are purchased Clydesdale mares and fillies, one two-year old Clydesdale stallion of the Farm's breeding, and the remainder are grade colts and work horses.

The herd of cattle consists of eighty-one pure-bred Shorthorns. Thirteen cows which finished lactation periods during the year average 5,618 pounds of milk with an average cost of feed per cow of $75.84, and a cost to produce one hundred pounds milk of $1.35. Experiments are being conducted comparing the feeding value of sunflower and corn silage for cows and growing heifers.

With sheep, the grading-up experiments with Shropshires and Oxfords again show marked improvement in both mutton and wool-bearing qualities of the first, second and third cross sheep as compared with the foundation stock. Experiments in lamb feeding were also conducted, all lots showing a small profit over the market value of the feeds.

With swine, Berkshires and Yorkshires are kept. Practically all last spring's pigs were sold to Boys' and Girls' Clubs for swine raising projects. An experiment in housing fall litters showed a straw shelter outside to be fully as good protection as an expensive piggery.

With poultry, the White Wyandottes are the only breed kept, and by careful selection and breeding the flock average has been raised to a highly creditable point. The record of the best laying pullet was 261 eggs in the year. The Saskatchewan Egg Laying Contest was again conducted during the year, the first place being taken by a pen of White Wyandottes.

In field husbandry, four rotations are under trial, one of straight grain growing, and three rotations of mixed farming type. The first-named showed a loss of $1.22 per acre, the three mixed farming rotations showed profits of $6.36, $4.37, and $3.71, respectively.

An experiment was commenced during the year to determine the value of various summer-fallow substitutes, such as sunflowers, corn, oats in double rows with thirty-six inches between the pairs of rows, and millet seeded in the same way as the oats. In 1922, wheat will be sown on this area and the effect of these crops on the wheat noted. With cereals, the regular variety test work was conducted, and also with forage crops.

In horticulture, the yield of fruits except currants was excellent, as was that of vegetables.

No new buildings were constructed during the year, but some painting and repair work was done.

A Saskatchewan Clydesdale Breeders' field day was held at the Farm in July, and a class of farmers' sons from the district was given training in stock judging during the year. The teams of these boys captured practically all the prizes at the judging competition held in Regina in competition with twenty other teams from various parts of the province.

Experimental Station, Scott, Sask.

A snowfall of over twelve inches during the first week of April and cold backward weather and rains from the 21st to the 24th, delayed the commencement of seeding operations until the end of the month. From June 17 to September, the weather was dry—only 2·41 inches of rainfall were recorded.

The pure-bred Percherons have been increased by one horse colt. One young grade Clydesdale gelding was sold to a neighbouring farmer. Five Shorthorn heifers and one bull were received from the Indian Head Experimental Farm. Four of these heifers freshened and the herd has been increased by three heifer calves and one bull. Steer feeding experiments have been conducted. Serious losses from goitre in lambs occurred. Experiments to determine the best method of preventing this loss have been started. Wool prices were unprofitably low but the returns from sales of mutton and breeding ewes totalled $777.89. Silage was found to be worth $12.17 per ton as a supplemental feed for feeding lambs. Cross-breeding swine has been extensively followed. Self-feeders for feeding swine have proven profitable. Rape pasture has decreased the cost of producing gains in swine by half a cent per pound.

Crop rotations to include sweet clover and winter rye have been introduced. The cost of production during 1921 showed Western Rye grass hay to cost $6.33 per ton, sunflowers $3.50. Wheat and oats cost 88 and 29 cents per bushel respectively.

To the success with small fruits previously reported can now be added a second step forward in the development of some promising strains of native plums. Ripe tomatoes were harvested in the vegetable garden on August 8. Excellent crops of other vegetables including corn, beans and peas were secured. There has been a marked increase in the interest taken in the horticultural work by both visitors and correspondents.

Further experimental work with varieties of cereals have been conducted—first generation registered Marquis wheat and Banner oats were grown and sold to farmers in different parts of northwestern Saskatchewan.

Sunflowers have outyielded corn grown for ensilage. Tests of varieties of sunflowers and distances apart to grow the plants, best time to seed, etc., have been started. It has been found that sweet clover can be grown with a light nurse crop. Pasture experiments show the sweet clover to have a greater carrying capacity than alfalfa but that stock make the most gains on the alfalfa.

The returns over feed cost from the poultry plant amounted to $587.15. There has been an increased demand for both breeding stock and hatching eggs.

The midsummer excursions to the Station were unusually well attended and a marked increase in the correspondence has been noted.

Experimental Station, Rosthern, Sask.

The season of 1921 was remarkable for a long growing season and for the greatest rainfall of any year since 1912. The result was a heavy crop reaching full maturity.

In animal husbandry, feed conditions were favourable both for pasture and for the growing of winter feeds.

Feeding experiments with steers were carried on in the winter of 1920-21, but for the first time since these tests commenced in 1913 were conducted at a loss, owing to the abnormal drop in beef prices at the time these steers were finished in the spring. Some very valuable data were, however, gathered from this work both on housing, feeding, and management of beef cattle during the feeding period.

The herd of pure-bred Holstein dairy cattle now numbers seventeen females. The highest producer during the year was a senior three-year-old, which gave 18522·2 pounds of milk in 365 days, with an average test of 3·4 per cent butterfat.

The flock of sheep was reduced to fifty breeding ewes and one ram and from these were raised fifty-two lambs to maturity.

The Berkshire has been the only breed of swine kept until just at the close of the year when a start was made with Tamworths in order to conduct comparative experiments with the two breeds.

In field husbandry, some five rotations have been under way for eleven years, and in this connection careful records are kept of all elements in cost of production. It has been found that the greatest profit over a number of years is derived from a mixed farming rotation, including wheat, oats, barley, hay, pasture, and an intertilled crop such as Indian corn or sunflowers.

Excellent results were obtained in horticulture during the year, and further evidence was obtained that until a windbreak is established, little can be done in horticulture on the average prairie farm for lack of shelter. The simplest means of securing this windbreak is to sow caragana seed where the windbreak is wanted.

The tests with cereals, during the year, did not bring forth any results out of line with those of previous years, except in indicating that Ruby was apparently more rust-resistant than were Marquis and Red Fife. No success had been obtained for three years previous to 1921 in seeding to grasses, but owing to the greater rainfall of that year, all the early seeding of Western Rye grass with a nurse crop caught. A number of experiments involving more than two hundred plots have been laid out with the object of finding out best methods of seeding and best varieties to use of twenty kinds of grasses and clovers. Considerable experimental work was done with sunflowers, a crop which is attracting a great deal of attention especially in those districts where Indian corn is not a sure crop. Some very valuable data were gathered as to the best variety and best cultural methods to follow in growing this crop.

During the year a new dairy cattle barn was built, 36 feet by 50 feet, with capacity for eighteen cows and also containing three box-stalls.

Experimental Station, Swift Current, Sask.

Preliminary steps toward establishing an Experimental Station for southwestern Saskatchewan, were taken in 1920. Some fencing was done in the autumn of that year.

In April, 1921, Mr. T. Chalmers was appointed temporary supervisor under the direction of the superintendent of the Indian Head Experimental Farm. Mr. Chalmers did a large amount of preparatory work, putting the station in shape to begin experimental work in the spring of 1922.

During the season, 460 acres were broken, 300 acres of which was broken shallow and backset. The balance was broken in one operation to a depth of about 6 inches. The entire area was disced into reasonably good condition for seeding.

Twenty-five acres of the early breaking was seeded to oats for feed. Another forty acres was seeded to two varieties of fall rye. In the coming season the remainder of the broken land will be laid down to various rotations and other experimental work.

The breaking, backsetting and discing were done with a Case 15-27 Tractor at an average cost of eight dollars and seventy-five cents per acre.

A house and barn were erected on the farm; a well was sunk, which provides a good supply of water, and all outside fencing was completed.

At present the stock consists of ten work horses, two colts, one cow and one calf. Six of the horses were purchased locally; the other four and the two colts were obtained from the Indian Head Farm.

Experimental Station, Lethbridge, Alberta

The season of 1921 commenced quite favourably. While the previous fall was dry and the winter open, leaving little reserve moisture in the soil, the timely storms of March and April gave the crops a good start. The crop prospects looked favourable until the middle of June but, from then on, grain as well as all other crops deteriorated rapidly. The results at threshing time proved very disappointing and over the greater part of southern Alberta another crop failure has to be recorded for the season just passed.

One rather interesting feature in connection with grain yields that was commonly observed was the fact that spring ploughed stubble land produced so very much better results than fall ploughed stubble land, in fact instances were not unusual where spring ploughing yielded fully as well as summer-fallow. This seasonal condition is accounted for by the lack of summer rains to wet the fallow, while during the winter it, along with the fall ploughing, was blown bare of snow while land on which stubble and weeds were standing caught and retained the snow.

There was comparatively little soil drifting in southern Alberta during the season but cutworms and grasshoppers did considerable damage in many localities.

In the autumn it was late before the ground froze up, allowing ample time to lift potatoes and similar crops.

LIVE STOCK

A feeding experiment started in January, 1921, with forty head of steers, to test the comparative value of alfalfa hay and a mixture of cut oat straw and alfalfa as a roughage was completed. The results confirmed the returns obtained in previous similar tests in that better gains were obtained by feeding the mixture of cut alfalfa hay and good oat straw than by feeding the uncut alfalfa hay.

A feeding experiment with thirty-nine head of steers is now under way to test the value of sunflower silage, corn silage and alfalfa hay as roughage in the production of beef.

No experimental work is being carried on with milch cows.

The experiment in pasturing sheep in the Crowsnest forest reserve is being continued. The results from the summer pasture so far as the sheep themselves are concerned, were eminently successful. The losses in the mountains were trivial. The ewes came out in excellent condition and the lambs were distinctly larger than range lambs of the same class and age that had been summered on prairie ranges. From a financial standpoint, however, the success of the experiment is, up to the present, somewhat in doubt. The relatively high freight rate on the sheep to and from the mountains has made the cost of the summer pasture rather high.

TWO FARMS

Half the land comprising the Station farm can be irrigated, the other half is above the ditch and, on the latter part, experiments in dry land farming are conducted. In a sense, two experimental farms are really being operated at the Lethbridge Station.

FIELD HUSBANDRY

In field husbandry a number of suitable rotations for both dry and irrigated land are being carried out as well as a very elaborate series of cultural experiments. Another season's data were secured from the fields set aside for the testing of permanent pastures under irrigation.

HORTICULTURE

Two vegetable gardens, one on dry land and the other on irrigated land, were grown although the larger part of the varietal test work was carried out in the irrigated garden. In the variety test of potatoes, Irish Cobbler and Gold Coin led in yield over a nine year period on the dry land and stand well on the irrigated land.

The yield from the small fruits was considerably lighter than usual, owing to the severe weather during blooming time. With the tree fruits Dr. Wm. Saunders cross bred apples were the only ones that bore fruit. The Manitoba seedling plums bore well and the prospects of obtaining a variety that will be hardy here and still produce large, well flavored fruit seem encouraging.

CEREALS AND FORAGE CROPS

The yields on the dry land were extremely low but were satisfactory on the irrigated. Special attention was given to the growing of sunflowers, testing varieties, dates of seeding and methods of cultivation.

POULTRY

The Barred Rock breed is the only one kept. All the birds, both pullets and hens, are carefully trap-nested, the principal object of the work being to develop a good laying strain. The second Alberta Egg Laying Contest was completed in October, 1921, and a new contest started, with twenty-three pens competing.

BEES

At the present time there are eleven colonies. The yields of honey produced per colony continue to be satisfactory. The principal experimental work being carried on is in regard to the best method of wintering. So far our experience would indicate that outside wintering, when proper protection is given, is the most satisfactory.

EXHIBITS AND MEETINGS

An exhibit was shown at the Lethbridge Fair and also at the Annual Flower Show at Calgary. The Superintendent as well as members of the staff addressed numerous farmers' meetings at various points on agricultural subjects.

Experimental Station, Lacombe, Alta.

SEASON

The year under review was the third of a series of dry ones, the May and June drought being especially damaging to hay and wild pasture crops. July rains, however, helped the grain crops, and yields were good.

LIVE STOCK

Scanty fall pastures were responsible for live stock beginning the winter in poor condition. Efforts to improve the individuality in herds and flocks have been continued and data secured as to production costs for beef, mutton, pork, eggs and milk. Experiments have also been conducted to demonstrate the best and most economical methods of housing and feeding. The horses at the Station number fifteen, while the dairy cattle consists of sixty-one head. In the beef herd there are seventy-two head, and the total number of sheep carried over the previous winter was 581. With swine a very successful year has been completed, there being forty-four litters during 1921 (thirty-six spring and eight fall).

FIELD HUSBANDRY

Tabulation of yields of the various field crops has been completed, and comparisons made of corn, sunflowers, and peas and oats for silage crops. Five different rotations were carried on; comparisons and records have also been kept of the cost of producing field crops, with comparisons as to respective cost of using horses and tractors for field work. There have, in addition, been comparative tests of the differing cultural methods for various field crops.

HORTICULTURE

The year's work has demonstrated that, even in a dry season, satisfactory yields —both as to quantity and quality—of bush fruits, strawberries and vegetables can be produced. Very large yields of gooseberries, currants, raspberries, and strawberries of five different varieties were obtained. Also, despite a late spring, a satisfactory quantity of tomatoes was ripened. Variety and strain tests were conducted with these crops, and with vegetables, annual and perennial flowers and trees and shrubs. Comparative cultural tests for all staple garden crops were conducted, and results all round go to show that good farmers' gardens should be as common in Alberta as in Ontario.

FORAGE CROPS

Variety and strain tests were continued with corn, sunflowers, sugar beets, mangels, turnips, swedes and field carrots, together with experiments in thinning. Further, the different cultivated grasses and clovers were compared with the annual forage crops for the production of dry fodder and pasture.

POULTRY

The laying stock (of three breeds) consists of 219 pullets and 66 two-year-old hens. There are also some ducks and geese. Pedigree breeding was commenced this year.

BEES

From six colonies placed in the cellar in the fall of 1920, five strong ones were brought out in April, 1921, the two weakest having been united. In spite of the adverse dry weather, these colonies produced a total of 275 pounds of extracted honey, one colony producing 76 pounds. Two of the strongest colonies were divided, making

seven colonies to finish the season with. Records were kept on different wintering systems, on summer protective methods and on the use of home grown and imported queens.

GENERAL

Farming conditions during the year were extremely trying, and many farmers have decided to adopt new branches and better methods. Numbers of them have come to the Experimental Station for advice and assistance, the number of visitors being double that of previous years and the correspondence multiplied three times. The adoption of mixed farming and a gradual increase in the number of milch cows, brood sows and poultry kept have been recommended. Much information has also been given as to the most suitable breeds of live stock, methods of handling, suitable crops for grain, hay, pasture and ensilage production, and rotation in which these crops may be produced to the greatest advantage. The extension work consisted of sending an educational exhibit to several summer fairs, exhibiting a carload of fat sheep of seven different breeds at Edmonton, and a car load of hogs of three breeds at Calgary.

Experimental Farm, Agassiz, B.C.

THE SEASON

The spring of 1921 opened up fairly early but farming operations were interrupted during the last half of April by heavy rains. May was dry, which afforded excellent conditions to complete seeding. All crops did well during the summer except corn. The early cereals were harvested in August with average yields, while late grains were badly discoloured and sprouted. Roots gave excellent yields as also did hay and pasture crops. A very severe winter set in early in November and continued right up to the end of March. Many roots and potatoes were frozen in pits.

The Clydesdale horses kept on this Farm are in good condition. Two foals were raised last year and five mares are in foal at the present time.

The dairy herd consists of fifty-six head of pure-bred Holsteins. The last of the grade herd was sold during the year. Another successful test for tuberculosis has been passed and the second term as an accredited herd has been entered. Seven R. O. P. records were completed, all by two-year-old heifers except one. The best record was made by Agassiz Walula Sylvia; she produced 16,575 pounds of milk and 670 pounds of butter as a junior two-year-old. On January 21, 1922, Agassiz Segis May Echo freshened in excellent condition. She afterwards gave 121.5 pounds of milk in one day, made 36.69 pounds of butter in seven days and 140 pounds in thirty days.

On account of a milk shortage at certain seasons of the year, only a few Stilton cheese were manufactured. A large number of Wensleydale cheese were made and sold at an excellent profit.

The flock of Dorset sheep has continued in good condition throughout the year. The 1921 wool clip returned 11½ cents per pound net. At the time of writing a good crop of lambs is on hand; thirty-five of these have been put in excellent condition for the Easter market.

The Yorkshire breed of swine is kept at Agassiz. The herd consists of two aged boars, twelve breeding sows and seventy sucking pigs. The results of a self-feeder experiment carried on during the summer show a greater daily gain per pig in favour of the self-feeder lot but cheaper gains from the trough fed group, labour not included.

The Barred Plymouth Rock and White Leghorn breeds are kept. A large number of eggs from each breed was sold for hatching purposes. The first Egg Laying Contest completed here October 31, 1921, was a great success. A pen of White Leghorns won the contest, laying 2,247 eggs in the year. The best individual laid 283 eggs. That the coast section of this province is well suited to poultry is proved by the excellent results obtained in this contest.

A comparison was made between sunflowers and corn for ensilage purposes. The sunflowers gave greater yields than corn when sown in either drills or check rows. Barnyard manure applied in spring on the hay meadows increased the yields from 1½ to 2½ tons per acre. Work in the cereal section consisted of testing two varieties of wheat, eleven of oats, twelve of barley and two of mixed grains. In forage crop work, twelve varieties of ensilage corn, twenty-two of mangels, seven of carrots and three of sugar beets were tested.

The horticultural work done this year consisted of the usual variety tests of potatoes, vegetables, fruits and flowers and experiments in their culture. Considerable cold, wet weather in June and a lack of sunshine generally throughout the season militated against good results and earliness. Rain during the autumn again prevented the saving of seed to any extent and damaged much of the fruit.

Only a minimum amount of temporary fencing was accomplished and no permanent fencing. No land clearing was attempted other than some underbrushing in connection with getting out fuel. A new laying house was built on the poultry plant. The boarding house and some of the houses were painted and redecorated inside. The implement shed was repaired and the horse barn sealed up inside and painted outside.

Experimental Station, Summerland, B.C.

The spring of 1921 was early and followed an exceedingly mild winter. The soil was well supplied with moisture and germination was rapid. Growing conditions remained favourable until July, which was very dry as was the first half of August. During this period crops suffered severely, and the supply of irrigation water was very small and irregular. The winter just passed has been one of the longest and coldest on record with very little snow, so that it is feared considerable damage to trees may have occurred.

Steer feeding experiments were carried on during the winter just closed, the comparisons being between shelter vs. no shelter, sunflower silage vs. roots and corn silage. Both lots of steers made excellent gains and profits. Those fed roots did better than those fed sunflower or corn silage.

The sheep on the Station consisted of pure-bred Cheviots and Grade Oxfords, as well as pure-bred Suffolks, of which fourteen were purchased during the year.

In the breeding work with swine considerable trouble has been experienced from hairlessness in litters. Potassium Iodide is being fed to combat this and there is hope that this treatment combined with plenty of exercise given the sows will have beneficial result.

With bees the amount of extracted honey taken from the best hive was ninety pounds and the average per hive spring count eighty pounds.

The experimental work with cereals consists of the testing of varieties of wheat, oats and barley. Many of these tests have now been carried on for six successive years.

In field husbandry systematic rotations have now been put under way. These are probably the first to be practised in the southern interior of British Columbia. Field crop production on the Station is carried on under a seven year rotation with alfalfa the crop five years out of the seven. This is giving very satisfactory results, especially in assisting to build up the soil.

Approximately seven acres are devoted to experimental work with forage crops. Of this area three acres are devoted to breeding, selecting and testing grasses and clovers, the remainder of the land being under a four-year rotation, part of it devoted to test plots of grasses and clovers, experiments with mangel and corn varieties, sugar-beets, etc., etc. Work is also being carried on in alfalfa, mangel and soy bean growing for seed production, and the growing of sunflowers and corn for ensilage.

In horticulture the orchard showed no sign of winter injury when examined in the spring of 1921. The prolonged dry spell, however, and the shortage of irrigation water made conditions rather unfavourable for growth, but, nevertheless, the growth of the trees throughout the orchard was fairly satisfactory. The six orchards on the Station are being carried on under various cultural methods, such as, clean cultivation, permanent alfalfa, soiling crops, truck crops and the regular farm rotation. A valuable collection of data on the different varieties under test is gradually being accumulated. New varieties of apples, stone fruits, pears and small fruits are all receiving attention, and numerous varieties of vegetables, also annual and perennial flowers, are being tested.

With poultry the White Wyandotte is the breed kept, and the stock carried over from one year to another is all selected after a rigorous culling from trap-nest records and hatching results in their pullet year, attention also being given to type in the selection made. The male birds used are all from dams which registered over 200 eggs in their first laying year. Among the breeding hens being used in the season of 1922 there are the following numbers with the records given:—

Fifty-eight hens with a record of 176 to 200 eggs in their pullet year.

Thirty-seven hens with a record of 201 to 225 eggs in their pullet year.

Nineteen hens with a record of 226 to 250 eggs in their pullet year.

Nine hens with a record of over 250 eggs in their pullet year.

The average number of eggs for the entire flock of 123 breeding hens is 208.4, the highest individual record, 289 eggs.

In the spring of 1921, 50 acres of land lying immediately east of the Station were leased. Twenty-five acres of this area will be under crop this coming year.

During the year there was erected on the Station a plant pathological laboratory to give accommodation to the plant pathologist recently appointed. A horticultural building was also put up, equipped for fruit grading and packing purposes. The concrete basement of this building is divided into four frost-proof compartments, for the purpose of experimenting in the storage of fruit, and equipment will be installed to permit of regulating the humidity of the air in each compartment.

An exhibit from this Station was shown at Penticton, Armstrong, Salmon Arm, Kelowna, Peachland, Summerland, Vancouver, and New Westminster. The Superintendent during the year attended several conventions and meetings of farmers' institutes, and was able during the winter to address a series of meetings throughout the Okanagan and Kootenay districts in co-operation with the provincial horticulturist.

Experimental Station, Invermere, B.C.

The past season opened very mild and with little precipitation. Seeding began earlier than usual, but due to lack of moisture crops did not make rapid growth. The hay crop was above the average, and was harvested under good weather conditions. During the growing season there were many heavy wind storms that affected the crops. The cereal, forage and root crops were harvested in ideal weather, and were up to the average in yield and quality. The precipitation for the year was an inch below the average. The winter has been very severe.

Very good returns were made by the various rotations, and the results again show that potatoes, peas and clover are the money-making crops for this district. The results on the dry land farming were negligible, and point quite conclusively to the necessity for irrigation.

The horticultural work progressed very well during the past season. Considerable experimental work was undertaken with potatoes. Garden peas are a very outstanding crop, and some selections from seedlings are very promising. Further crosses with peas were made with outstanding varieties. Good results were obtained

from the variety tests of garden vegetables. Small fruits do very well, but are late, and are at a disadvantage on the open market. Tree fruits are only to be recommended for home and garden planting.

Marquis wheat, Banner oats and Gold barley lead in the respective cereal tests. Prussian Blue was again the highest yielding pea, the opportunity there is for the farmer with this crop may again be pointed out.

With forage crops, the clovers and grasses have outyielded the alfalfa and grasses. Good yields of corn and sunflowers were obtained, but roots were only a fair crop.

On the poultry plant a profit of $3.16 per bird over the cost of feed was obtained from a pen of White Wyandottes. One of the birds, "Lady Dot", E. 3, produced 325 eggs during the year. Experimental work with pedigreed trap-nesting, hatching and rearing is being continued.

The past season has been a poor one for the beekeepers, and the apiary output was considerably lower this year. The net profit per hive was $11.65, which is the lowest of the past five years. Good results are following the introduction of the Kootenay hive-case.

The Station exhibit was shown at four local fairs, and considerable interest was shown, as indicated by the enquiries received, and the number of bulletins and circulars given out.

Experimental Station for Vancouver Island

SEASONAL NOTES

The spring of 1921 was somewhat backward owing to the sodden condition of much of the soil throughout the district. The summer was cool with consequent slowness of vegetation. The annual wet season was earlier than usual, which interfered somewhat with the harvest, but most of the crops were gathered without loss. Hay was a good crop throughout the district as were the cereals and roots. The fruit crop was not up to the average, although pears and cherries did well at the Station. The winter of 1921-22 was cold for the island. Little snow fell, but frosty weather was carried well into the spring, so that all plants were slower in developing than other years.

LIVE STOCK

Horses.—In addition to the four work horses reported in former years another horse has been purchased for general work in the horticultural division and poultry department.

Cattle.—Some changes and additions have been made in the dairy herd. Some outstanding Jerseys have been purchased.

Swine.—No swine are being kept at the Station as yet, owing to lack of housing accommodation.

Sheep.—A small flock of Southdowns has been purchased as a beginning in the sheep industry. These animals were obtained from one of the best breeders in Ontario.

Poultry.—The work of the poultry division has been maintained at a high standard. All previous records at this Station have been broken with "Saanich Belle". This pullet laid 307 eggs in her pullet year.

HORTICULTURE

The experimental orchards have received considerable attention. Many varieties of pears and cherries, new to the district, have come into bearing and promise much in that the season for both of these fruits has been considerably lengthened, in fact it has been found possible to offer pears for sale during much of the winter. The small fruits, the vegetable garden and ornamentals have all received attention.

APIARY

A few colonies of bees have been kept for several years at the Station to determine the value of the district as a honey producing section. Cloudy weather and cold nights are not conducive to success with bees, yet considerable success has followed the efforts in this direction. About 60 pounds of surplus honey, spring count, was taken from each hive.

GENERAL

A cottage for the farm foreman was built, and the buildings already at the Station have been kept in repair. An exhibit was put on at the fair in Victoria and at several local fairs on the southern part of the island.

DAIRY AND COLD STORAGE BRANCH

THE PROGRESS OF THE DAIRYING INDUSTRY

The season of 1921 was very unfavourable for milk production over large sections of Ontario and Quebec. The quantity of cheese produced was practically the same as in 1920, in spite of the extreme summer drought in the principal cheese producing districts. Had the season been favourable the production of cheese would have shown a large increase. The output of creamery butter increases year by year in all the provinces. The total production in 1920 was 111,691,718 pounds.

The production of condensed, evaporated, and powdered milks fell off during the year in sympathy with decreased demand for these products in the world's markets, and milk formerly used for this purpose was diverted to cheese factories. Old cheese factories were re-opened, and new ones were built in territory contiguous to the large condensing plants that had either been closed entirely or were operating with greatly reduced output.

Farmers who are engaged in dairying naturally feel that even with cheaper feeding stuffs the returns from milk production are smaller than they were under war prices, but the view is generally held that milk production yields as good a return, if not better, than most other lines of farming in this country.

The following table will serve to show the extent of the dairying industry and the different purposes for which the milk is used. The figures are for 1920, as the returns for 1921 are not yet available:—

TOTAL PRODUCTION, QUANTITIES AND PERCENTAGES OF MILK USED IN CANADA DURING 1920 FOR DIFFERENT PRODUCTS

Product	Quantities	Value	Milk used	Per cent
		$	Lb.	
Cheese lb.	149,201,856	39,100,872	1,641,220,416	16·25
Creamery butter "	111,691,718	63,625,203	2,568,909,514	25·43
Dairy butter "	125,000,000	56,250,000	2,875,000,000	28·46
Whey butter "	1,516,932	757,156	.....	
Condensed milk "	53,662,699	10,202,230	134,156,747	1·33
Evaporated milk "	30,469,642	3,809,653	76,174,105	0·75
Condensed coffee and cocoa "	531,451	147,052	1,328,627	0 01
Condensed skim-milk "	363,294	18,723	.....	
Milk powder "	7,574,669	2,178,176	.....	
Sterilized milk "	7,608,927	785,014	7,608,927	0·07
Casein "	109,958	19,233	.....	
Ice cream gals.	5,775,879	8,471,031	115,517,580	1·14
Cream sold lb. b. fat	7,379,131	6,533,098	210,832,314	2·09
Milk, used as such	.....	72,000,000	2,472,000,000	24·47
Buttermilk sold	.....	305,235	.....	
Cheese, skim-milk, whey and whey cream	.....	452,009	.....	
Total	.....	264,655,715	10,102,748,230	100·00

MARKET PRODUCTION

The year was marked by a very pronounced decline in prices, but at the time of writing the international market situation shows signs of improvement. The large stock of "government" butter, which had such a bearish effect on the market in the United Kingdom during the greater part of the past year, has all been disposed of, and the exchange situation is very much better than it was a year ago. Lower prices have encouraged a large consumption in countries where money is available to pay for dairy products. There are indications that the consumption of milk, butter and other dairy products has been considerably increased in Canada.

The continued increase in the exports of butter and cheese from New Zealand is not without some influence on the situation. On the other hand the exportable surplus of dairy products in the United States has been greatly reduced as compared with the war period. On the whole the world's market looks rather better than it did a few months ago.

THE FINCH DAIRY STATION

The commercial department of the Finch Dairy Station has had another successful year. The total quantity of milk received was 6,586,485 pounds, as compared with 5,570,545 pounds in 1920 and 2,069,281 pounds in 1912, the first year of operation. The station is now the largest cheese and butter factory in eastern Ontario. The fact that the revenue exceeds the expenditure proves that government institutions may be operated at a profit.

The encouragement of winter dairying has always been one of the important objects in view in the management of the Finch Dairy Station. During the period from December, 1912, to March, 1913, inclusive, the total quantity of milk received was only 208,937 pounds, while during the same period in 1921-22 there was received 1,404,739 pounds, an increase of over 400,000 pounds over the previous year.

The Finch Dairy Station serves to keep the Dairy and Cold Storage Branch in close touch with practical problems relating to the manufacture of butter and cheese, and the operation of cheese factories and creameries. It also serves a useful purpose in providing facilities for testing out new apparatus, new processes of manufacture, and for the carrying on of experiments in the manufacture of butter and cheese. Owing to the greatly increased supply of milk it has been found necessary to make an addition to the building and equipment.

COW TESTING

During the year 1921 the cow testing work was carried on under the policy adopted in 1918. The owners of the herds supply the necessary equipment to weigh the milk and to keep samples taken on three days during each month. Arrangements are made with some qualified person to test the samples of milk, and to forward the results to headquarters, where they are compiled and the records distributed to the persons interested.

The active co-operation of the dairy inspectors in the province of Quebec, and the dairy instructors and district representatives in the province of Ontario during the early spring months, resulted in a large increase in the number of cows being placed under record.

In accordance with the policy laid down in the spring of 1919, under which an offer was made to turn over the work to the provincial authorities at any time, the provinces of Saskatchewan and Manitoba have assumed responsibility for cow testing within their borders.

In addition to the keeping of records of milk production the farmers are encouraged to keep records of cost and quantities of feed consumed, forms being supplied for that purpose.

The following table indicates the number of cows under test in the different provinces in 1921.

TOTAL NUMBER OF HERDS, COWS, TESTING CENTRES AND TESTS MADE BY PROVINCES, 1921

Province	No. Herds	No. Cows	No. of Testing Centres	No. of Samples Tested
Alberta	65	793	27	3,924
British Columbia	10	163	5	691
Manitoba	176	1,173	34	2,858
New Brunswick	111	822	14	3,553
Nova Scotia	338	2,119	46	9,685
Ontario	761	9,279	93	39,557
Prince Edward Island	198	1,227	19	7,017
Quebec	3,499	32,225	473	127,462
Totals	5,188	47,801	711	194,747

The foregoing figures show an increase of 1,341 herds and 14,419 cows over the previous year.

In addition to the records which have passed through the office of the Dairy and Cold Storage Commissioner, many hundreds of forms are sent to individual farmers who do their own testing and keep their own records. The influence of this work extends greatly beyond the limit of those who are included in the records.

THE GRADING OF DAIRY PRODUCTS

The Dairy Branch again graded cheese for sale by auction at Montreal during the season of 1921.

The Dairy Produce Act, passed during the 1921 session of parliament, authorizes the Governor in Council to make regulations to govern the grading of dairy produce for export. A conference of representatives of all branches of the dairy industry throughout Canada was held at Ottawa on the 7th and 8th of March for the purpose of considering regulations under the Dairy Produce Act. Definite standards for the grading of butter and cheese were adopted, and the regulations were considered at some length.

A number of the delegates, especially those representing eastern Ontario cheese boards and exporters located at points outside of Montreal, came to the conference to oppose the principle of grading, but after hearing the matter discussed they found there was nothing to be opposed to, and a resolution approving of grading was passed with only one dissenting voice.

The proposal to grade all dairy produce for export has been approved by the dairymen's association in all the provinces, by the Canadian Creamery Association, the Canadian Produce Association, the Montreal Produce Merchants' Association, and the National Dairy Council. It is expected that the Department will be in a position to grade all dairy produce for export during the coming year.

DOMINION EDUCATIONAL BUTTER SCORING CONTEST

The Dominion Educational Butter Scoring Contest inaugurated in 1919 was continued in 1921. This work appears to be of service to the creamery men, and receives their hearty support, as well as the co-operation of the provincial officials.

ADMINISTRATION OF DAIRY LAWS

During the year under review there were one hundred and forty convictions for infractions of the Dairy Industry Act and the Oleomargarine Act of 1919. There were twenty-seven cases of confiscation of products, material or apparatus.

The most common violation of the law is that of excess water in butter, the legal limit of which is 16 per cent.

DAIRY MARKET INTELLIGENCE

The Extension of Markets Division of this branch issues a Dairy Produce Market Report throughout the dairy manufacturing season. A weekly letter is despatched every Monday, giving the latest information from the Montreal and Toronto markets up to noon of that day. Paid lettergrams are sent on Monday and Friday evenings to certain specified officials in the different districts, who are then in the position to give the information by telephone, or otherwise, to salesmen in their immediate vicinity. Similar collect lettergrams are sent to any person who requests to have his name put on the list.

DAIRY NEWS LETTER

The circulation of the monthly Dairy News Letter published by this branch continues to increase.

It is a very useful medium for the prompt dissemination of items of news of interest to those engaged in the dairying industry.

CARGO INSPECTION

With a return to more normal conditions in shipping circles the cargo inspection service has been fully re-established on the pre-war basis. An additional inspector was added to the staff during the year in the United Kingdom. Inspectors are now located at London, Liverpool, Glasgow, Bristol and Manchester. Inspectors were employed at St. John, N. B., and Portland, Maine, during a part of the winter season.

Reports as to the condition of perishable cargoes loaded at Montreal, Quebec, Halifax, St. John, and Portland, Maine, and similar reports as to the condition of these cargoes as they are discharged at the ports in the United Kingdom are made by the inspectors, and filed in the office of the Dairy and Cold Storage Commissioner, where they are available for reference in case of complaints as to damage in transit or improper handling of cargo on the part of carriers. Shippers are promptly notified of any defect in packing, if goods are found to be out of condition, with suggestions for improvement as far as possible.

Recording thermometers, or thermographs, are placed on board ship with perishable food products whether carried as ordinary cargo or in cold storage chambers. The total number of thermograph records obtained during the past year was 537. Blue-print copies of all these records are sent to the Montreal Board of Trade, to the agents and chief engineer of the steamship companies concerned, to all shippers who request copies, to the Montreal office of the branch and to other branches of the department interested in particular products.

ICED BUTTER CAR SERVICE

The usual iced car service for butter, to pick up less than carload lots at stations along the stated routes, was in operation throughout the season on different lines of railways.

The number of cars employed in carrying butter to Montreal under this arrangement was 1,081, with a total tonnage of 21,134,041 pounds of butter. The number of cars in the Toronto service was 355 with a total of 6,493,458 pounds of butter carried. The average temperature of the cars as taken by the inspectors employed by the Dairy and Cold Storage Branch ranged from 48 to 54 degrees F.

In addition to the butter in refrigerator cars the inspectors examined the contents of 116 boxcars carrying butter, and found the temperature to average 60 degrees.

CREAMERY COLD STORAGE BONUS

There were forty applications received for creamery cold storage bonuses during the year, and one deferred from 1920. Of this number twenty-six were paid the full bonus of $100, six were refused, and nine deferred for further action.

GRIMSBY COLD STORAGE

On December 31 last, the ownership of the Pre-cooling and Experimental Fruit Storage Warehouse at Grimsby, Ont., was transferred from the department to the Growers' Cold Storage and Ice Company, Limited, a company organized among the fruit growers. The value of the plant was fixed by arbitration.

The new company has greatly enlarged the warehouse, has increased the refrigerating capacity, and extended the scope of its operations by including ice making in its activities. Arrangements have been made to ice all cars loaded with fruit at Grimsby.

The operation of this warehouse by the department, through the Dairy and Cold Storage Branch, since 1914, has demonstrated to the satisfaction of the fruit growers and shippers in the vicinity that cold storage facilities are absolutely necessary if tender fruit crops are to be handled to the best advantage.

THE NEW PUBLIC COLD STORAGE WAREHOUSE AT MONTREAL

The cold storage warehouse erected by the Harbour Commissioners at Montreal will be ready for business by the first of May next.

SMALL COLD STORAGES

The Dairy Branch continues to receive many inquiries for plans and specifications for small refrigerators, suitable for the use of farmers, country stores, summer homes, and other places where ice is stored for domestic purposes.

A NEW SERVICE

A specialist in milk utilization was engaged during the year. The object of this service will be to disseminate information in various ways as to the valuable protective and nutritive qualities of milk and its products, and their relative cheapness as compared with other foodstuffs. We hope to secure results in this direction by the publication of suitable literature on the subject, through the medium of public addresses, moving pictures and playlets, by assisting in milk campaigns and child welfare work, and by putting on demonstrations or displays at meetings, exhibitions and other places as opportunity offers.

The new light which has been shed in recent years on the whole subject of human nutrition has placed dairy products in a very favourable position, and the public is entitled to have this information put before it by a fair and disinterested authority.

We consume in Canada fully 80 per cent of our total dairy production. We might very easily increase our consumption of milk and cheese and thus provide a good market for increased production. It is expected that something will be accomplished in this direction through the activities of this service.

HEALTH OF ANIMALS BRANCH

This branch administers two Acts of Parliament, the Animal Contagious Diseases Act and the Meat and Canned Foods Act; its activities, therefore, cover a wide range.

Under the former Act the work of the branch has recently been very greatly extended through its efforts to control and eradicate bovine tuberculosis. The two plans under which this work is chiefly conducted are known as the Accredited Herd Plan and the Municipal Tuberculosis Order.

The former plan deals with the pure-bred herds of the country and endeavours to eradicate tuberculosis entirely from this class of herd. The support given to this movement by the owners of pure-bred stock throughout Canada has been widespread and hearty. More work has been offered than the limited staff of the branch has been able to cope with, and, therefore, some delay has been inevitable in dealing with applications. The officers of the branch are, however, endeavouring to cope with this work as rapidly as possible and are making satisfactory progress.

In municipal testing, which offers facilities to any municipality in Canada which desires to eradicate tuberculosis from the herds supplying it with milk, marked progress has also been made. This plan has received increased attention and, judging from the large number of inquiries received from various cities and towns in Canada, work along this line may be expected to increase rapidly. It has already grown to large proportions, and wherever in operation has given satisfaction to the communities interested in it.

Several of the larger cities of Canada are now under the operation of the Municipal Tuberculosis Order, including Ottawa, Calgary, Edmonton and Regina, and smaller places, to a total number of fourteen. The demands made upon the staff of the branch for this work have, therefore, been very great, and it is to be regretted that the attendance at our veterinary colleges in Canada has of late years markedly decreased.

The veterinary profession does not appear to hold out to the young men of Canada the same attractions as other professions requiring a similar period of training. Unless the conditions change in the near future and young men are attracted into the veterinary profession, it may be expected that in a few years a great shortage of well trained veterinarians will be manifested. This can only be looked upon as a serious disaster to the live stock interests of Canada, which depend upon the well trained veterinarian for the maintenance of the health of Canadian live stock.

The past year has again demonstrated the freedom of Canada from serious diseases of live stock. Foot and mouth disease, cattle plague and contagious pleuropneumonia are still unknown within our borders, and the control of other diseases of a less serious nature has been maintained in a satisfactory way.

A brief glance at the conditions in regard to several of these diseases follows:—

GLANDERS

The provinces of Prince Edward Island and New Brunswick have been entirely free from this disease during the fiscal year just closed. Small outbreaks have been dealt with in all the other provinces, but the total number for the year is again considerably lower than that for the year ending March 31, 1921.

Reactions to the mallein test show that only twenty-five animals were affected with glanders, and these were slaughtered, and the compensation paid is considerably less than half the amount paid out during the previous year.

The policy of slaughtering all animals which react to the mallein test is thus vindicated again as being sound, and the only effective method of controlling this

disease, but the necessity for continual watchfulness remains, since immigrants and others are continually bringing in horses from across the boundary. These animals may quite possibly be in the incubative stage of the disease to an extent slight enough to avoid detection at boundary inspection ports, but sufficient to allow of the development of glanders some time after their arrival in this country, but, with the figures of the past few years as a guide, it is reasonable to expect that no widespread outbreak is liable to occur.

HOG CHOLERA

This disease has been dealt with in all provinces except Prince Edward Island and New Brunswick, but the year has shown a very remarkable reduction of the number of outbreaks, and the total number of animals affected.

For the year ending March 31, 1921, over 3,000 were necessarily slaughtered as being affected with hog cholera; during the year ending March 31, 1922, the number fell to less than 500. For the same periods compensation paid dropped from over $20,000 to an amount slightly over $3,000.

This improvement undoubtedly results from two causes. Of these, the first is the vigilance of our officers in maintaining a system of frequent and thorough inspection of premises upon which garbage is fed to hogs under license from the Veterinary Director General; the second cause is a concomitant of the first, in that owners and feeders of hogs are being educated to an appreciation of the necessity of meticulous precaution against the communication of disease to their animals through slovenly methods in care and feeding.

The policy of withholding compensation in cases where outbreaks have occurred upon garbage feeding premises has been continued.

A review of the incidence of the disease for the period under consideration is satisfactory, but it is probable that even better results will be obtained as opportunity offers to allow of more frequent inspection of licensed premises, and this is especially the case in the provinces of Manitoba and Ontario.

With the large increase of work in the direction of accredited herds, and municipal testing, the time available to our officers at the moment for routine inspections is materially curtailed.

TUBERCULOSIS

No work undertaken by the Health of Animals Branch is of any greater importance than that directed toward the control of bovine tuberculosis, and no part of the work is more difficult. The disease is so widespread, and so deeply rooted, that useful advance towards the goal of eradication must be steady and solidly based rather than rapid, but the support being accorded to the accredited herd plan, and the increased popularity of the municipal tuberculosis order, prove that stock owners and municipalities throughout the country are recognizing the practical nature of these policies.

On March 31, 1922, 909 herds were being dealt with by the department under the accredited herd plan; of these there were on that date 86 herds fully accredited, 724 herds in process of accreditation, and 99 herds accepted, but not yet tested. There were also 250 herds on the waiting list, and these figures give only a very moderate idea of the magnitude of the task, for in all herds accredited, or in course of accreditation, entry of additional cattle is only permitted under test, and retest after a lapse of sixty days in quarantine.

Under the municipal tuberculosis order, the work has increased very considerably during the past year. The herds supplying milk to fourteen towns and cities were submitted to 31,733 tests and 1,729 reactors were removed and slaughtered. It is interesting to compare these figures with those of the previous year, when 5,189 tests were conducted, and 238 reactors slaughtered.

In connection with this disease our inspectors also test cattle for export, but they are relieved of a certain amount of this work by the arrangement under which the United States Bureau of Animal Industry accepts tuberculin test charts of authorized veterinary inspectors when these charts are endorsed by an officer of this Department. If exporters will avail themselves of the services of these veterinarians as much as possible, they will find that their wishes as regards testing can be more promptly attended to, and our officials will have more time to attend to the testing of herds under the accredited herd plan.

MANGE

The blanket quarantine, which for a period of twenty-six years covered large portions of the provinces of Saskatchewan and Alberta, was removed during the year ending March 31, 1921, and since that time no necessity for the resumption of such quarantine has arisen.

A certain number of cases in which cattle mange was suspected were examined, and treated under the supervision of our officers, but action of this nature was largely precautionary. Actual cases of mange have been few, and have been controlled by quarantine, and treatment of individual herds. All reports of suspected mange have been immediately and closely followed up, and investigated, and the co-operation of owners is now much more easily secured, so that the inconvenience necessary under the area quarantine system of quarantining clean herds, as well as those actually infected, has been removed.

Control of this disease has now reached a point at which complete success may be reasonably expected. Farming is gradually replacing ranching in Western Canada, and the consequent subdivision both of the open ranges, and of the herds which formerly populated them, tends to render the work of inspection and treatment less onerous than formerly, but the co-operation of stock owners is still a factor vital to success.

Such co-operation is most simply and effectively given by the reporting of suspected cases immediately suspicion is aroused, and so affording our inspectors an opportunity for instituting measures of control at the earliest possible moment. If such co-operation be rendered, there is no reason to suppose that the system of blanket quarantine, and the inconvenience and annoyance inseparable from it, will ever again become necessary.

DOURINE

During the year ending March 31, 1921, a few suspected cases of this disease were treated by the laboratory, blood tests of which resulted in a negative reaction. This year no suspects were found in spite of the fact that a very careful watch was maintained in those districts previously affected with the disease.

As recently as the year 1915, a sum of $32,000 was paid out in compensation to owners of animals slaughtered for dourine. The value of the work of the inspectors engaged in the task of eradication can be gauged to this extent, but it is impossible to estimate the saving effected to the benefit of the horse owners of the western provinces, and so through them to agricultural interests generally throughout Canada.

Since the disease is insidious in its advance, and impossible of control, unless a radical and painstaking system of attack be put in force against it, no feeling of security will be allowed to diminish the vigilance of the officers of the department, but the results of the past two years afford solid ground for the belief that the disease has been eradicated from the Dominion.

ANTHRAX

One or two suspected outbreaks have been dealt with as a precautionary measure, but the actual existence of the disease has not been definitely established.

SHEEP SCAB

Only suspected cases have been dealt with during this period; of these one was in Saskatchewan, and one in Manitoba. Other provinces have been entirely free, and not even suspected outbreaks have occurred.

RABIES

No outbreaks of this disease have occurred during the year ending March 31, 1922. Suspicious symptoms occurring in one province were investigated, but laboratory investigation failed to confirm the existence of the disease.

INSPECTION OF STOCK CARS AND YARDS

The work of supervising the disinfection of stock cars and stock yards throughout the Dominion for the purpose of insuring that these are maintained in sanitary condition has been continued by the inspectors especially appointed to this work.

QUARANTINE STATIONS AND INSPECTION PORTS

On the Atlantic and Pacific coasts, and on the international boundary, quarantine stations and inspection ports have been maintained; animals entering Canada are examined at these points, and much of our freedom from disease among animals depends upon the thoroughness with which this work is accomplished.

It has again become necessary to refuse entry to cattle, sheep, other ruminants and swine, from Great Britain and Ireland, owing to outbreaks of foot-and-mouth disease in Great Britain. Such restrictions react unfavourably on Canada, as our breeders are prevented from obtaining purebred stock by importation. It is hoped that the necessity for any regulation of this kind will be removed in the near future.

Pathological Division.

This division has been set a very severe and difficult task. The demands for laboratory services and special investigations have increased by leaps and bounds. The laboratory work required in the administration of the Animal Contagious Diseases Act and the Meat and Canned Foods Act grows continually; in addition, applications for vaccines and sera, requests for laboratory tests, examinations and reports, and appeals for advice, assistance and investigation pour in from stock owners and veterinarians from all parts of the country.

This Dominion-wide work requires men specially trained in bacteriology, serology, pathology and parasitology. Eight men are available for the six laboratories and research stations maintained; the chief of the division and three animal pathologists for the Biological Laboratory, Ottawa, and the Research Station, Hull; and one animal pathologist for each of the following: the Veterinary Research Station, Lethbridge, Alberta, the Veterinary Research Station, Agassiz, B.C., the Fox Research Station, Charlottetown, P.E.I., and the Laboratory connected with the Poultry Division, Central Experimental Farm, Ottawa.

BIOLOGICAL LABORATORY AND RESEARCH STATION

Bovine Tuberculosis.—Bovine Tuberculosis and the development and extension of the Accredited Herd plan has occasioned extraordinary efforts on the part of every member of the staff. The success of this campaign depends not only upon the zeal and laborious work of inspectors in the field but to a large extent upon the work of the Pathological Division, upon the results of research work, the examinations and reports upon the material obtained from reacting cattle and upon the reliability and potency of the tuberculin used in testing the herd. A small herd of cattle are maintained at the Research Station for experimental work in connection with the

testing and standardizing of manufactured tuberculins and with the problems relating to acquired resistance, tolerance and immunity of cattle to tuberculin and tuberculous infection.

The immense importance of tuberculosis eradication in cattle and the immense sums of money that must be spent in attempting it, warrant extensive research work. Better knowledge of several important factors in tuberculosis infection of cattle, which at present are baffling or inexplicable, would surely lead to more perfect methods of control and to reducing the cost of this expensive campaign. In spite of the lack of present facilities for research some observations and experiments made during the past year are important and significant and it is hoped that means will soon be provided for the continuation of uninterrupted research on this great problem.

The tuberculin test offers the best known means of detecting hidden infection. Studies are being made of the conditions under which this test sometimes fails, of serum and immunity reactions and of auxiliary tests, which, in the future will probably play a role of great importance.

The laboratory output of tuberculin for the year ending March 31, 1922, was 300,745 doses, that is, three times the amount for the previous year 1921, six times the amount for the year 1920, and nearly thirteen times the amount for the year 1919. These figures alone indicate how the work of this division has increased during the past four years.

Contagious Abortion is also causing year by year an increased demand for laboratory products and special investigation. The demand for the former has been met but neither the staff nor accommodation has permitted serious investigational work to be undertaken. We continue to furnish abortion vaccine for the treatment of severely infected herds. The owners are requested to keep a detailed herd-history record and for this purpose blank sheets are issued with each consignment of vaccine on which all the information required before and after treatment is specifically indicated. We hope by this means to obtain some valuable data. The vaccine preventive treatment for abortion is admittedly in the experimental stage and nothing definite can be said with regard to the efficacy of the treatment, which is favoured by some authorities and opposed by others.

Blackleg Vaccine.—The demand for this vaccine has been met and over 33,000 doses have been issued. However, there are a number of different forms of blackleg vaccine on the market which seem to be increasing in popularity each year. It is not our intention to compete with commercial houses in the manufacture and sale of a product of known efficiency. The question of discontinuing the preparation and distribution of blackleg vaccine is now under consideration.

Specimens and Samples.—Over 800 specimens and samples, including blood and body tissues of animals, suspected animal feeds, meat and canned foods, samples of water, parasitic infestations, etc., have been examined and reported upon. Some of the above have led to extensive field investigations and laboratory research.

DISEASES OTHER THAN THOSE DEALT WITH UNDER THE ANIMAL CONTAGIOUS DISEASES ACT

In addition to contagious abortion of cattle, which is not dealt with by the Act, the Pathological Division performs a great deal of work on other diseases and conditions, some of which are assuming great economic importance. A monthly return of diseases and conditions affecting livestock is collected from the Chief Inspector of each province.

Botulism is another disease, or rather a form of Forage Poisoning, which is causing considerable losses to stock. The first proof of this condition in Canada has been established during the past year by the investigations carried out at this laboratory. A paper on the subject is now in the press and further studies are in progress.

Bovine Mycosis.—From time to time conditions somewhat resembling those of a serious disease are reported and necessitate immediate investigation. These generally prove to be a form of mycosis. As this condition may be confused with foot-and-mouth disease, a special study of it is under way and a preliminary report ready for publication.

Many other problems of the live stock owner are dealt with by this division either by direct communication with the owners or through the attending veterinary practitioner.

BRANCH LABORATORIES AND STATIONS

Veterinary Research Station, Lethbridge, Alta.—The principal diseases under investigation are swamp fever of horses, parasitic mange of cattle and necrobacillosis of sheep. Although the disease known as dourine, so fatal to horse-raising, appears to have been completely eradicated as a result of the thousands of tests made in previous years at this laboratory, occasional tests are made of stallions for the safeguarding of the horse-breeding industry.

Veterinary Research Station, Agassiz, B.C.—Certain diseases of sheep and goats and the disease known as Kamloops cattle disease have received attention. Laboratory experiments have been conducted in connection with contagious abortion of cattle. Considerable correspondence has been attended to, while lectures and addresses are given at live stock meetings on the problems peculiar to British Columbia.

Fox Research Station, Charlottetown, P.E.I.—The various problems and phases relating to fox farming, more particularly sanitation, diseases and parasitical infestations, have been studied, and much progress made. A number of papers have been published and have been summarized or rewritten in a paper which is now ready for publication as a special bulletin.

POULTRY INVESTIGATIONS

This work is carried on at the laboratory connected with the Poultry Division, Central Experimental Farm. The chief problems studied are those of roup and canker, those of incubation and the fertility of eggs, and the parasites of poultry.

At each of the above-mentioned branch laboratories a considerable amount of routine work has to be attended to in reporting upon specimens received, animal autopsies, and in answering letters of inquiry.

Meat and Canned Foods Division

The volume of work carried on by this division has increased to a great extent during the past year.

Rapid strides have been made in systematizing the work throughout the whole country with a view of having uniformity made general.

A high standard of efficiency has been maintained in the large force engaged, in order that the service may be of incalculable value to the country at large. It stands to-day as one of the most fully equipped agencies through which may be gathered the data necessary to the success of any broad plan, having for its object the conservation of the national food supply.

Through the system of meat inspection alone, it reveals diseases such as tuberculosis, etc., parasitic affections, the presence of which is not suspected in the living animal until the damage is beyond remedy and the loss beyond prevention. Without the knowledge gained in this manner, the work of eradicating diseases would be considerably impeded.

Every effort expended toward this eradication is a material advance along the line of conserving the food supply as well as preservation of the public health by preventing food of an unwholesome nature being offered for sale.

The principal disease observed is tuberculosis, which according to post mortem finding has from year to year increased. What might have been the result had the meat so affected been consumed, we can only imagine.

The plans at present being carried out toward its eradication give promise to a gradual process of elimination in the not distant future. Valuable assistance is being rendered those entrusted with this all-important work of eradication by statistics furnished as to the centres of infection, by those engaged in post mortem inspection in the large packing houses, wherein complete records are kept regarding the districts from where the infected animals originated.

During the fiscal year ending March 31, the number of establishments in Canada operating under the control of this division were:—

Meat packing	43
Jam, pickle and canning establishments	313
Apple evaporators	159
Condensed and evaporated milk plants	31

The above establishments, by provinces, were distributed in the following manner:—

	Meat packing	Jam, pickle and canning establishments	Apple evaporators	Condensed and evaporated milk plants
Prince Edward Island	3	6	.....	1
Nova Scotia	.....	18	17	1
New Brunswick	.....	8	1	
Quebec	9	47	.....	1
Ontario	15	189	137	24
Manitoba	8	6	.....	
Saskatchewan	1	.....	.....	
Alberta	6	2	.....	
British Columbia	1	37	4	4

In the Meat Packing Establishments the total number of animals inspected at the time of slaughter were 3,119,326.

This number was divided as follows:—
Cattle, 737,223; sheep, 654,806; swine, 1,727,297.

The number of carcasses which passed inspection was:—
Cattle, 728,147; sheep, 654,188; swine, 1,723,426.

In addition, the following animals were condemned on post-mortem inspection:—
Cattle, 9,076; sheep, 618; swine, 3,871.

On inspection and reinspection of the meat food products prepared and processed in the establishments, a large amount was condemned on account of conditions such as rancidity, taint, etc., etc., which rendered it unwholesome for human consumption.

Owing to the great care exercised by our officers and the reasonable manner in which the difficulties have been met and adjusted, grievances between manufacturers and officers of this division have been reduced to a minimum, which is most gratifying, to say the least. There are, however, questions of policy occasionally arising, the settlement of which can only be affected through changes in the law itself or its interpretation.

At the present time those operating under the Act, particularly the meat packing establishments, with some justification feel that in so far as intra-provincial business is concerned, they are subjected to the competition of diseased and unsound meats and meat food products placed on the market by those whose establishments are not under official supervision. It is pleasing to note, nevertheless, that there exists to-day a great sentiment in favour of the establishment of municipal abattoirs wherein meats intended for domestic consumption shall be subject to the same expert examination as those dealt with under The Meat and Canned Foods Act.

It is earnestly hoped that public opinion now being formed along the line of demanding only inspected food products will, in the not distant future, assume such proportions as will forcibly impress upon the municipal and provincial authorities the importance of this great work, which it is felt, will be a step in the right direction and also assist materially in protecting our greatest national resource, namely, public health.

The officers of this division rendered invaluable service to several of the farming organizations throughout the country along the line of greater live stock production by placing before them the various disease conditions found in food producing animals which were revealed during the inspection work carried on in the large packing establishments throughout the country.

It is hoped that the information imparted relative to the general conditions found may act as a stimulus to live stock producers whereby every effort shall be put forth in order to free their herds from the ravages of disease.

An honest effort put forward in this regard will be conducive to the conserving of one of Canada's greatest assets, namely, food producing live stock.

In the other establishments where food products are manufactured, the work carried on by our officers has been of paramount importance. Sanitary conditions are improving steadily. The quality of the product has been very considerably enhanced by the setting up of standards covering Canadian fruits and vegetables and the strict enforcement of the law governing same, which renders it imperative that the label shall embody the "truth, the whole truth and nothing but the truth", thus insuring the consumer of a sound, wholesome food supply, and which from an economic point of view places our exportable food products on an enviable plane on the various foreign markets.

The standardizing of these products forming, as it did, a nucleus for the general standardization of food products, has had a marked effect on foreign buying as manifested by the increased demand for Canadian canned fruits and vegetables.

The consumption of canned food products put up under inspection is steadily increasing. Seldom, if ever, do we learn of cases where illness due to ptomaine poisoning can be directly traced to the eating of same. This, it is felt, is due chiefly to the following:—

First. Nothing but sound, wholesome material enter into their composition.

Second. The strict sanitary measures adopted in connection with the packing of same.

Third. The elimination by law of injurious preservatives and the very complete scientific manner in which the various products are prepared and handled prior to and during the course of preparation.

The jam manufacturing industry has been receiving careful study. A large amount of useful information has been accumulated from research work carried on and it is hoped that the not distant future will witness the formulating of equitable legislation covering the standardization of jams, marmalades, etc., which will lead to the stabilizing on both the home and foreign markets products of this great present-day industry.

A great amount of experimental work has been carried out during the year, in connection with the work of inspection in general. A mass of valuable data has been accumulated, which will serve to assist materially those responsible for the enforcing of the different laws pertaining to foods.

EVAPORATED APPLES

Rapid strides have been made during the past year along the line of stabilizing this important industry, the aim of those interested, being the preservation of this form of food, through most improved and up-to-date methods.

The legal standards of quality governing this product, which have been in effect but a comparatively short time, have been productive of most beneficial results and have been conducive to increasing materially the demand for this food commodity by foreign countries.

The manufacturers and dealers have given wholehearted support in assisting our officers in enforcing the standards, with the result that to-day the industry bids fair to become a very important factor in the economic life of Canada.

There are, however, at the present time, a few factories that are not up to the standard with regard to equipment, etc., they being, so to speak, rather antiquated. Yet a gradual process of elimination in regard to these establishments is being carried on by our responsible officers and the time is not far distant when it is hoped that this product will emanate from none other than establishments most modern in every respect.

CONDENSED AND EVAPORATED MILK

During the past year, a marked increase has been shown in the export demand for the products manufactured in these establishments. The preceding year was to say the least a most unfavourable one, post-war conditions apparently affecting it seriously.

The high quality of the product which is manufactured under strict sanitary requirements, coupled with the ever increasing demand for it, are features which spell success for the future of this industry.

The work of inspection of imports of food products has been greatly improved. At the present time, our officers stationed at important points throughout the country from Charlottetown to Victoria, manifest strict vigilance over all imports in order that nothing may be allowed into the country that does not conform in every way with the requirements of the law governing same.

During the past year, this organization was placed at the disposal of the Department of Marine and Fisheries in order that a closer check might be made of the imports of canned fish products.

It is pleasing to note that satisfactory arrangements were made whereby this important phase of the public food supply has been receiving the desired attention.

A section of the Feeding Stuffs Act relative to animal products manufactured in establishments under inspection has also been enforced by officers of this division stationed throughout the various establishments. The arrangement has been to all intents and purposes extremely satisfactory as no additional cost has been incurred in enforcing the above mentioned Act.

LIVE STOCK BRANCH

Horse Division

During the year officers of the division continued enquiry into the conditions of the horse industry both on the farms and in the cities. The information secured goes to corroborate that previously obtained. Even in cities where climatic conditions are most favourable for open traffic during the winter months, horse-power is for certain work replacing mechanical power. The horse is slowly but none the less surely returning to favour and from the evidence at hand will continue to do so in proportion as the country returns to normal conditions.

The cold and heavy snow falls of our northern winters, preceded and followed as they are by a period of rain and soft roads, are great determining factors in favour of the horse, always efficient under such conditions; this statement is substantiated in the opinion of men who have been long engaged in transportation work in various parts of Canada ranging from the Atlantic to the Pacific ocean. These men are quite emphatic in the statement that horse-power in this northern country will never be seriously replaced by mechanical power, and are further urgent in the demand that a horse-breeding propaganda be carried out; otherwise there will be a great shortage of certain classes of horses, particularly needed in this reconstruction period in our young country.

The lowered cost of farm products is also compelling farmers to adopt the most economical methods in carrying on their work. By keeping a number of good brood mares to do the farm work, a crop of colts can be raised each year which will prove a valuable asset. In addition, the manure produced by the horses will not only add fertility to the soil by supplying it with otherwise costly fertilizing ingredients but will also add humus which the wise farmer knows is absolutely essential if he wishes his land to produce good crops. Furthermore, horses through their adaptability can be used on any farm whether the soil be rough and hilly, stony or stumpy, or laid out in small fields or mile stretches. In a bad season the farmer can start cultivating and seeding with horses with a minimum amount of delay and there will not be strips of the land packed so hard that they cannot grow a crop.

There is another phase of the question that should not be overlooked, in fact, it should be given serious attention not only by the farmers but by transportation people of the whole country. It is the fact that, in producing horses the feed is grown on the farms and thus obtained at first cost. In that way, a wider market is created for coarse feeds and the money kept in the country. Where mechanical transportation power is used, large quantities of gasoline and oil are required, much of which has to be imported and accordingly large sums of money leave the country. If all the gas and oil required were obtained in Canada, the farmer would still be at a disadvantage in using motor power in that he would have to buy it as a finished product and at retail price. On the other hand he may obtain feed for his horses at first cost and at the same time return a very considerable amount of fertility to the soil, in the shape of manure.

After careful study of the question, the department decided that in the best interests of the country a few of the facts regarding the horse should be placed before the breeders. Accordingly, this was accomplished through the medium of a few advertisements appearing in the agricultural press. These advertisements pointed out clearly that unless more attention is paid to breeding there will be a decided shortage of big draught horses in the course of the next three or four years. The advertisements also set forth the need for horses weighing from 1,100 to 1,400 pounds and sired by suitable stallions of the so-called light-horse breeds. From such matings, saddlers and hunters, for which there is a keen demand at good prices, are obtained,

and as well as police and remount horses, fire horses, delivery horses and useful farm horses. If the breeders of the country will follow the policy indicated they will adhere to certain definite types and thus eliminate the nondescript, for which there is no demand.

CLUBS

In 1921 there was a very material increase in the number of Breeding Clubs in the province of Quebec. The average of the stallions hired was very good indeed, in fact, better than in some of the other provinces. A gratifying result brought about by community breeding is that clubs are selecting a better class of stallion. Last spring many private individuals purchased high-priced sires of outstanding merit because they were able to hire them to clubs and were thus assured of a fair return on the money invested.

In those provinces where community breeding has been given attention, there is to-day a nice crop of young horses coming forward, and year by year improvement is being made through the selection not only of better stallions but also of better mares. To this might be added better feeding, care and management which practices ensure the colts growing to normal size. The holding of Colt Shows in many of the districts is also doing much to encourage the breeding of a better class of horse, demonstrating to the people how to feed and care for the colts properly, and at the same time instilling a love for good animals into the breeders, and particularly into the boys who are later on to represent the farming industry.

Community breeding or the raising of a large number of horses of a certain type in one district is beneficial in that when a district once becomes known for producing a certain type, the matter of selling will be facilitated. Buyers are always attracted to centres where carloads can be readily picked up; thus, in addition to finding a market for the surplus stock there is bound to be competition so that the best prices possible will be obtained.

Cattle Division

DISTRIBUTION OF PURE-BRED BULLS

Pure-bred bulls have been loaned by the branch since 1913 to specially organized associations in newly settled districts and in backward sections of the older provinces. Up to the end of the calendar year 1921, the number of bulls loaned in this way totalled 3,424.

This policy is now well known throughout the whole Dominion and is popular not only with farmers who are able under its terms to secure the services of a good bull, but also with breeders who are anxious to find a steady outlet in their own country for commercial bulls.

In many districts in which the department's bulls have been standing for service for several seasons, improvement in the young stock and in the stock annually marketed is to-day very noticeable. It is not the policy of the branch to continue assistance to a district after the farmers in same are in a position to purchase their own sires and no bulls are discarded until their usefulness as sure and suitable sires is over.

During the past two years, the branch has been securing a large proportion of its supply of bulls from the various provincial consignment sales and this support has been highly appreciated by contributors to the sales since it has assured them a good average price for the better bulls offered and has provided an inducement to bring out to these sales only a desirable class of commercial bulls.

The following table gives the total number of bulls purchased for each province under the Distribution Policy during each year of its operation to the end of 1921 and also the total cost of each year's purchases:—

TOTAL COST OF BULLS PURCHASED, COMPLETE TO DECEMBER 31, 1921

Province in which placed	Bought 1913	Bought 1914	Bought 1915	Bought 1916	Bought 1917	Bought 1918	Bought 1919	Bought 1920	Bought 1921	Total
	$	$	$	$	$	$	$	$	$	$
British Columbia	465— 3	1,295— 9	2,797— 21	4,175— 32	3,445— 22	3,710— 19	2,500— 13	4,420— 20	4,910— 27	27,717— 166
Alberta	2,430— 20	10,827— 78	9,917— 76	11,697— 81	12,675— 71	14,585— 67	23,170—104	34,610—147	19,980—104	139,891— 748
Saskatchewan	3,988— 33	14,960—116	16,050—124	10,780— 76	12,265— 70	8,135— 43	15,755— 77	21,550—100	22,090—113	124,673— 752
Manitoba	3,100—27	3,280— 26	3,635— 28	4,965— 35	6,550— 37	6,160— 32	7,469— 35	7,185— 33	15,340— 88	57,675— 341
Ontario	1,090— 11	4,152— 33	6,776— 53	1,930— 13	6,545— 39	5,335— 27	8,420— 41	6,380— 30	5,550— 31	46,178— 278
Quebec	.....	11,742—111	19,799—170	23,512—200	21,749—165	8,110— 50	10,962— 63	19,612—109	11,825— 73	127,311— 941
New Brunswick	.....	325— 4	755— 7	915— 9	405— 3	495— 6	4,480— 37	785— 6	.....	8,160— 72
Nova Scotia	.....	2,005— 20	2,268— 21	1,185— 13	850— 9	595— 7	760— 7	1,160— 9	435— 5	9,258— 91
Prince Edward Island	.....	1,535— 15	1,635— 17	260— 3	110— 1	250— 2	.....	200— 1	290— 2	4,280— 41
Total	11,073— 94	49,221—412	63,632—517	59,419—462	64,594—417	47,375—253	73,507—377	95,902—455	80,420—443	545,143—3,430
Average cost	$118	$119	$123	$129	$155	$187	$195	$211	$182	$159

SIRE PURCHASE POLICY

In the spring of 1921, the branch inaugurated the above policy with a view to encouraging a more general use of properly selected animals and of providing an agency through which farmers may secure good pure-bred sires with the least possible expense and difficulty.

Under this policy the branch is prepared to fill orders for bulls, boars, and rams under certain conditions. An applicant is required to deposit a percentage of the purchase price with his order. The sire, when secured, is shipped to him on approval. If no complaint regarding the animal is made within three days after delivery, the balance of the purchase price becomes due.

This policy has been operative in several provinces during the past year and a considerable number of bulls have been purchased under its terms for settlers and other farmers who were not in touch with breeders and who were so situated that they could not set out to purchase a sire for themselves without running up a travelling expense bill out of proportion to the amount of the investment involved.

The purchases made have given good satisfaction and during the spring months of 1922 many farmers, particularly in Western Canada, have taken advantage of the assistance given under this policy in securing pure-bred bulls for their own use.

SCRUB BULL CAMPAIGN IN ONTARIO

During the year 1921, the Live Stock Branch co-operated with the Ontario department in promoting an anti-scrub bull campaign in several counties of western Ontario.

An effort was made by the provincial department to eradicate scrub bulls completely from a number of townships in the counties of Huron and Bruce and during the first six months of the year, upwards of seventy pure bred sires were placed in that part of the province as a direct result of the campaign.

In order to facilitate the sale of these bulls, the Live Stock Branch opened exchange stables at several points and kept a supply of bulls on hand in these stables during the weeks that the campaign was in progress in the territory adjacent to the various points at which the stables were opened. These bulls were purchased outright from the breeders and were sold at cost plus freight and feeding expenses. The bulls were all carefully selected and the expense of purchasing and caring for them while they were in the stables was borne by the branch. One of the field officers of the branch also assisted in working up a demand for the bulls and took complete charge of the closing of all transactions where bulls were sold through the exchange stables. In all, fifty-four bulls were sold through these stables. During the months of October and November, one of the field officers of the branch was of very material assistance in the county of Oxford in effecting an exchange of young pure-bred bulls for grade bulls in the county. Under the policy followed by the district representative in that county, a number of the local breeders donated a young sire for this purpose and the proceeds received from the sale of the scrub bulls which the pure-breds replaced were divided among the contributors. This policy was effective in the replacing of upwards of sixty scrub bulls within the boundaries of Oxford County.

During the early part of 1922, the campaign was extended to cover a number of counties not touched in 1921, notably Peel, Dundas, Renfrew, Perth and Ontario. Exchange stables were opened by the branch at different points in which pure-bred bulls were assembled for resale. In addition to the assistance given in purchasing bulls for these stables and in supervising their maintenance in the stables and their resale to farmers, field men of the Cattle Division devoted considerable time to preliminary organization work.

CAR-LOT POLICY

This policy provides for payment by the Live Stock Branch of reasonable travelling expenses of farmers residing in Canada who purchase stock at general stock yards for return to country points. In Eastern Canada the assistance rendered is confined to purchases of female breeding stock, cattle, sheep or hogs. In Western Canada the policy covers stocker and feeder cattle in addition to breeding stock. Purchasers are required to fulfil certain requirements of the department in connection with their shipments and to give satisfactory assurance that none of the stock is being purchased for speculative purposes.

This policy has proved a very valuable educational agency in that its terms have encouraged farmers from all over the country to visit the stock yards and to become acquainted with methods of doing business at these points, and has unquestionably played a very important part in encouraging a return of unfinished cattle and sheep to country points for further feeding and also in the return of young female breeding stock, particularly from yards in Western Canada.

The policy has been in effect on the stock yards of Western Canada since the fall of 1916. On the yards at Toronto and Montreal it has been effective only since May 1, 1918. The following is a statement of the shipments made under its terms for the five calendar years ending December 31, 1921:—

CAR-LOT POLICY SHIPMENTS

Year	Steers	Heifers	Sheep
1917	10,773	9,683	1,430
1918	20,632	18,702	6,266
1919	22,490	17,550	9,408
1920	14,012	7,992	6,137
1921	8,714	7,626	9,417
Totals	76,621	61,553	32,658

The cost of this policy to the department during the above five year period averaged 60 cents per head for cattle and 17 cents per head for sheep.

FREE FREIGHT POLICY

In the fall of 1917, the free freight policy was inaugurated by the Live Stock Branch in co-operation with the railway companies of Canada, with a view to preventing, as far as possible, the slaughter or exportation of useful heifers, young ewes and young sows offered for sale on the open market at the central stock yards. Under this policy farmers are entitled to ship from stock yards to country points female breeding stock, of the classes mentioned, without payment of freight charges on same, provided the stock was not purchased for speculative purposes.

During the time the policy has been in operation it has been very widely taken advantage of by farmers anxious to secure breeding stock and it has unquestionably been one of the most important factors in promoting the return to country points of a large percentage of useful females offered on the yards, particularly at Edmonton, Calgary and Winnipeg. Since the inception of the policy, September 21, 1917, shipments under its terms from the different yards up to December 31, 1921, numbered as follows:—

Name of Yard	Heifers	Ewes	Sows
Calgary	27,819	41,747	.....
Edmonton	25,129	9,671	155
Winnipeg	21,599	10,855	203
Toronto	1,934	12,367	.....
Moosejaw	420	190	.....
Montreal	184	452	.....
Prince Albert	71	160	.....
	77,156	75,442	358

BOYS' CATTLE BREEDING CLUB POLICY

In January, 1922, a new policy, known as the Boys' Breeding Club Policy, was inaugurated, the objects of which have been outlined as follows:—

(1) By stimulating and promoting interest on the part of farm boys in breeding, feeding and marketing of good cattle.

(2) By encouraging a closer study of production and marketing costs with a view to eliminating wasteful and unproductive methods and to realizing the highest net returns from the product marketed.

(3) By demonstrating the importance of maintaining a proper balance between individuality and productive capacity in appraising breeding stock.

(4) By increasing the commercial value of the cattle of the country through wider distribution of good breeding stock.

(5) By increasing the value of the cattle of the country through the principle of community breeding.

(6) By providing a means of demonstrating the importance of proper feeding and management in developing and thereby increasing the value of young breeding stock.

Under this policy, boys' clubs of fifteen members or more are being started with pure-bred heifers. They are required to finance these heifers themselves, to keep careful record of the season's operations both as regards the heifer herself and as regards the progeny. Competitive features will provide incentive and interest and by linking up the work with the Distribution Policy and with the Record of Performance, provision will be made for continuous constructive work from season to season.

Several clubs have been started under this policy in Ontario and the Maritime Provinces and it is expected that a considerable number will be organized during the fall months.

RECORD OF PERFORMANCE TEST FOR PURE-BRED DAIRY CATTLE

During the past year there has been a greater increase than in any previous year, both in the number of cows entered in the test and the number of owners who have commenced the work. During the year, two thousand nine hundred and eighty-six applications for entry were accepted. At the present time there are six hundred and forty farms where cows are being tested for the Record of Performance. The work has increased to a point where it has become necessary to apply for the appointment of additional inspectors in order that the requisite number of visits may be made to each farm where cows are being tested.

The Record of Performance now commands the confidence of breeders of dairy cattle throughout the whole Dominion and is proving of inestimable value to the dairy industry, as well as to individual farmers who are anxious to improve the production of their herds by introducing superior blood lines.

It has, however, recently become necessary to draw attention to the fact that the object of the Record of Performance is not to provide a free and open competition for high individual records. In many instances, breeders have taken advantage of the test merely to enter one or two particularly good cows, with a view to qualifying them with outstanding records. The practice has not only added greatly to the department's cost in supervising the test, but has also indicated a lack of general recognition of the importance to the industry of high average herd production. The amending of the rules of entry with a view to stressing the real purpose of the test is now under consideration.

Following is a brief summary of the year's work:—

NUMBER OF COWS ENTERED FOR THE TEST

Ayrshire	875
French Canadian	53
Guernsey	82
Holstein Friesian	1,015
Jersey	673
Red Polled	27
Shorthorn	261
	2,986

NUMBER OF RECORD OF PERFORMANCE CERTIFICATES ISSUED

	Cows	Bulls
Ayrshire	350	11
French Canadian	10	1
Guernsey	26	1
Holstein Friesian	591	27
Jersey	251	9
Red Polled	3	..
Shorthorn	137	2
	1,368	51

TOTAL NUMBER OF CERTIFICATES ISSUED SINCE THE COMMENCEMENT OF THE RECORD OF PERFORMANCE

	Cows	Bulls
Ayrshire	2,193	96
French Canadian	112	3
Guernsey	81	2
Holstein Friesian	2,693	123
Jersey	826	30
Red Polled	3	...
Shorthorn	520	11
	6,428	265

Poultry Division

During the past year the poultry industry in Canada has had one of the most successful years in the history of the industry. Prices have been well maintained both in relation to prices prevailing during the after-war period and in contrast to prices of other agricultural products. At the same time, during the latter part of the year, costs of production were materially reduced, with the result that those who were successful in securing good production of eggs during the late fall and early winter obtained highly satisfactory and remunerative returns.

It has been apparent for some time that the National Poultry Policy outlined a few years ago, and which was included in the last report, has contributed in no small degree to the satisfactory condition of the industry. This condition is strongly apparent in the place which Canadian eggs have found on the British market, the

free movement of the Canadian storage stocks for export last fall having done much to clear the market and maintain the price. Possibly one cannot better sum up the situation in an export way than to quote from a letter received from a well-known Canadian editorial writer for a prominent western paper who, following interviews with many British importers, writes that the dealers there speak most highly of the work which Canada has done in the way of egg trade improvement and that it is a very great satisfaction to know that Canada has succeeded in making her egg trade respected.

EGG INSPECTION

By virtue of authority granted under the Egg Regulations under the "Live Stock and Live Stock Products Act," it is required that Canadian eggs for export be graded and inspected as to grade before being shipped. The Egg Regulations have been in effect for the past four years and it is due in no small degree to the uniformity and high average quality which has been secured under this system that Canadian eggs have obtained such favourable recognition on the British market.

For the purposes of administration, Canada is divided into two sections, viz., Eastern and Western. The Eastern Section covers Ontario east of Port Arthur, Quebec and the Maritime Provinces. The Western Section covers territory west of the Great Lakes, including Port Arthur. The following table gives a record of inspections for the calendar year 1921:—

TABLE 1.—STATEMENT OF INSPECTIONS, EASTERN SECTION

Months	Number of inspections	Number of inspections approved	Number approved to date	Number of cases inspected	Number of cases inspected to date
January	2	2	2	500	500
February	3	3	5	500	1,000
March	3	3	8	1,134	2,134
April	57	56	64	24,632	26,766
May	66	64	128	24,227	50,993
June	62	59	187	17,883	68,876
July	34	30	217	7,284	76,160
August	53	51	268	17,725	93,885
September	49	46	314	14,210	108,095
October	171	161	475	60,666	168,761
November	143	139	614	52,530	221,291
December	31	29	643	7,632	228,923

TABLE 2.—STATEMENT OF INSPECTIONS, WESTERN SECTION

Months	Number of inspections	Number of inspections approved	Number approved to date	Number of cases inspected	Number of cases inspected to date
January	11	10	10	3,859	3,859
February			10		3,859
March	12	11	21	5,211	9,070
April	33	33	54	12,937	22,007
May	61	57	111	20,553	42,560
June	63	54	165	18,681	61,242
July	28	25	190	8,401	69,642
August	50	41	231	10,029	79,671
September	18	16	247	3,767	83,438
October	19	19	266	4,321	87,759
November	20	19	285	4,828	92,587
December	9	5	290	1,189	93,776

TABLE 3.—STATEMENT OF INSPECTIONS, EASTERN AND WESTERN SECTIONS COMBINED

Months	Number of inspections	Number of inspections approved	Number approved to date	Number of cases inspected	Number of cases inspected to date
January	13	12	12	4,359	4,359
February	3	3	15	500	4,859
March	15	14	29	6,345	11,204
April	90	89	118	37,569	48,773
May	127	121	239	44,780	93,553
June	125	113	352	36,564	130,117
July	62	55	407	15,685	145,802
August	103	92	499	27,754	173,556
September	67	62	561	17,977	191,533
October	190	180	741	64,987	256,520
November	163	158	899	57,358	313,878
December	40	34	933	8,821	322,699

TABLE 4.—SUMMARY OF INSPECTIONS, WESTERN SECTION PRAIRIE PROVINCES)

	1920 Jan. 1st. December 31 inclusive	1921 Jan. 1st. December 31 inclusive
Number of cars inspected	342	324
Number shipped, Montreal	72	100
" " Quebec	0	2
" " Toronto	53	21
Other Ontario points	25	12
Number shipped to British Columbia	44	11
Number exported direct	55	40
Number moved interprovincially between Prairie Provinces	46	103
Number not approved	47	35

TABLE 5.—EXPORTS (BY GRADE), 1921 (AS INSPECTED)

	Fresh			Storage			
	Extras	Firsts	Seconds	Extras	Firsts	Seconds	Preserved
January					360	140	
February	450	50					
March							
April							
May		1,589					
June	110	2,275					
July	2,015	2,550					
August	1,670	12,220	100				
September	2,350	3,370		1,000	4,270		225 firsts
October	2,551	280	620	9,258	44,447	517	1,034 extras 700 firsts
November	322			5,960	41,787	806	549 firsts 125 extras
December					2,500		
Total	9,501	22,334	720	16,218	93,364	1,463	2,633

Total fresh 32,555 cases
Total storage 113,678 "

Total 146,233 "

For the calendar year, 1921, 998 inspections were made covering 322,969 cases; of these 146,233 cases were exported to Great Britain and of this quantity 32,555 cases were fresh and 113,678 cases storage. During the year a notable increase took place in interprovincial or voluntary inspection in Eastern and Western Canada. This increase is indicative of the growing tendency on the part of produce dealers and packers to buy, and track shippers and country dealers to sell, on a graded basis subject to government inspection, thereby applying the principle of quality payment. The buyer is given a guarantee of quality through the medium of the inspection certificate and the markings placed on the case; the seller's interest is safeguarded through the work of inspection being done at the point of shipment and at the time of shipment.

Reports and investigations last season revealed certain abuses apparent in rail and ocean transportation. With the positive knowledge thus obtained, a vigorous campaign was undertaken through the proper channels to eliminate preventable loss through improper methods of handling, packing and stowing aboard ship and so forth. The results of the efforts put forth have been very satisfactory, and the heavy losses previously reported through breakage, have been reduced to a minimum.

One large British importer writing under date of March 17 last gives his experience in reference to Canadian eggs last year, as follows:—

> "It is only necessary to say a few words in regard to quality and condition, which on the whole were most satisfactory. It is believed that the exceptionally fine weather which prevailed at the time of production was to some extent responsible, but there was plenty of evidence that the selection, grading, and packing had received the utmost care and attention."
>
> "I must say that my shippers gave my buyers, as well as myself, every satisfaction in the matter of packing and general outturn of the shipments, and one buyer who bought quite a lot of Canadian eggs forward, actually sent me a letter of congratulation on the way the contracts had been handled, notwithstanding the fact that on the declining market, he had suffered a very severe loss. This, I think, speaks volumes for the Canadian product."

There have been two prosecutions during the current year for violations of the regulations, one against the Public Cold Storage Warehousing Co., Toronto, for shipping a carload of Chinese eggs to Montreal without inspection as required by the regulations, and the other against the Grand Trunk Railway Co., receiving and transporting a shipment without a Government certificate approving the shipment as required by the Act and amendments thereto. In both cases the actions were dismissed, a written judgment being handed down in which it was contended that the English version of the regulations were obscure while the French version was quite clear that the regulations referred only to Canadian eggs. This judgment practically suspended the application of the egg regulations to imported eggs and has permitted the free movement of foreign eggs within Canada in competition with the Canadian product without any control whatever.

Both previously to and especially since the above judgment was handed down, a special investigation has been under way to procure positive data on the quality of foreign eggs arriving in Canada for domestic consumption. It is now clear from the data thus procured, that steps should be taken to control the quality of foreign eggs marketed in Canada in competition with the domestic product.

Attention has also been directed during the past year to an analysis of the conditions under which domestic eggs are being offered to the consuming public, to ascertain why consumers have experienced so much difficulty and unpleasantness in the purchase of eggs. With this end in view an extensive investigation of the quality of eggs offered the public by retail stores has been undertaken, and reports are on file covering upward of 3,000 retail stores in the principal consuming centres

in Canada. Low grade, bad and musty eggs were found to be the principal factors retarding home consumption. Realizing that the home market is Canada's greatest market, attention is being directed to placing before the retail merchants and the public at large the desirability of handling only eggs graded in accordance with the Canadian standards, thereby offering the consumer eggs of a definite quality. This practice wherever undertaken to date has met with very gratifying results, particularly in stimulating home consumption, sales have doubled and in some instances trebled, one retail merchant alone reported the sale of over one thousand dollars' worth of eggs in ten days. Certain amendments to the egg regulations are under consideration which will more effectively develop the home market.

EGG AND POULTRY MARKETS INTELLIGENCE SERVICE

The system of distributing daily market reports inaugurated last year has proven quite satisfactory. Through the medium of the Associated Press daily market wires covering the situation throughout Canada appear in the daily press in all parts of Canada the morning after the reports are issued from Ottawa. This very excellent service costs very little from the standpoint of the number of people reached. As has been previously outlined the change necessitated a number of additional correspondents but the cost of these is more than offset by the saving in postage, paper and labour at the Edmonton, Winnipeg and Ottawa offices. Many of the papers using this daily market wire are now giving the department credit for the information.

In addition the Weekly Egg and Poultry Markets Report is still being published. During the past year a revision has been made of the mailing list. A form was forwarded to each address on the mailing list asking whether the recipient wished to continue receiving the report. Over 3,000 forms have been returned and almost daily letters are being received asking why the report has been discontinued. These are from those who failed to fill in and return the application form.

A connection is still maintained with British egg importing houses, ninety-seven of these receiving the Weekly Report and many in return are writing during the course of the year as to the trend of the British market. These letters in addition to one special market letter and three cable correspondents enable the department to keep in close touch with market prices and requirements in Great Britain.

At the Canadian Produce Association Convention in Montreal the question of departmental market reports was one of the subjects under discussion. There was some criticism by representatives of one or two of the larger packing houses, but very strong representations were made by small country dealers and track shippers for the continuance of the reports. They very strongly endorsed the action of the department in the publication of both the daily and weekly reports.

The method employed in gathering market information is the same as in the previous years. Every officer of the Poultry Division is a market correspondent and expected to furnish a daily report on prices, receipts, etc., from the points visited. In addition special correspondents are maintained in Vancouver, Calgary, Edmonton, Regina, North Battleford, Montreal and St. John. The London, Liverpool and Glasgow markets are reported weekly by cable.

The effect of the distribution of United States markets information has been most apparent in connection with the marketing of poultry, especially live poultry. Frequently Buffalo, Boston and New York prices are higher than Toronto and Montreal. Prompt advice regarding this enables Ontario and Maritime shippers to divert their shipments. This has created more competition in buying with the result that Canadian prices for poultry last year compared favourably with the highest on record.

CO-OPERATIVE MARKETING AND POULTRY PROMOTION

The encouragement of co-operative marketing is but one of the many phases of the work carried on by the district poultry promoters and their staffs. Their work includes all phases of the marketing problem as relating to eggs and poultry. These men actually work among the producers, interpret to the producers the various phases of policy as inaugurated and, in turn, recommend to the department the requirements of the producing public in the way of policy. They are at the same time promoters, or better, propagandists, for the particular phase of the work which they have in hand.

The work in one district is by no means the same as in another. Different activities develop in accordance with the needs of particular districts. For instance, in British Columbia the assistance has been extended almost exclusively in the extension of the co-operative marketing of eggs and poultry while in Alberta it has taken on the form of general encouragement, discussion of ways and means of improving the poultry kept on the farm, of marketing the product, and of getting better stock to the districts where no pure-bred stock is kept at the present time. In New Brunswick and in Prince Edward Island the car-lot shipment of live poultry has been initiated and has successfully demonstrated a practical undertaking, following which both private and co-operative enterprise have taken it over. Allied with this work are culling demonstrations and selection of breeding flocks and other pertinent matters relating to the more economic production as well as the more efficient marketing of the product.

In some districts co-operative marketing is much further advanced than formerly; nowhere is this more pronounced than in British Columbia where, following a reorganization of the association and the introduction of more efficient business management, the volume of the turnover has steadily increased, as has also the membership, until to-day the B. C. Co-operative Exchange is one of the most aggressive sellers of eggs on the Pacific coast, not only distributing the product throughout the Dominion but also shipping to New York, and, in the case of at least one shipment, direct to the London (Eng.) market. As a result of the marketing system introduced largely through the efforts of officers of this branch, the poultry industry of British Columbia is to-day in a more satisfactory state than it has ever been before. In the Prairie Provinces co-operative marketing of eggs and poultry is still in its infancy. More volume is required in local centres to make it a pronounced success. In Ontario, during the past year, progress in an organization way has been only nominal, but the quantity handled by local units has steadily increased, the total volume handled this year being fifty per cent greater than last. In Quebec the facilities offered by the co-operatives are largely responsible for the recent increase of the poultry kept in that province. In New Brunswick most attention has been given to the car-lot movement of live poultry and the marketing of dressed poultry co-operatively. The Nova Scotia Poultry Products, Limited, is the major development in a co-operative way in Nova Scotia in the last year and some very satisfying results to producers have been obtained from its operation in the Antigonish, Guysboro, and Lower Cape Breton districts. In Prince Edward Island, the P. E. I. Co-operative Egg and Poultry Association reports another successful year.

RECORD OF PERFORMANCE FOR POULTRY

Record of Performance for Poultry has now been in operation for two and one-half years. Two record years have been completed, and reports issued giving detailed results of all entries. By a special effort the second annual report was distributed early in March of the present year, in time to be of service to breeders in the buying and selling of hatching eggs and day-old chicks.

Briefly, the objects of Record of Performance may be stated as follows:—

(1) To encourage the breeding of poultry combining high production and standard qualities.

(2) To secure for poultry breeders reliable information as to the sources of such stock.

(3) To demonstrate to breeders the value of trap-nesting and pedigree-breeding in building up high-producing strains of standard breeds of poultry.

(4) To eliminate the advertising of high trap-nest records of doubtful authenticity.

(5) To assist breeders in becoming familiar with the most up-to-date methods of poultry breeding

This work has grown rapidly in volume since its inception in 1919. Table I gives the comparative entries in 1919, 1920 and 1921. It will be noted that Ontario leads, both in numbers of breeders and birds entered, with British Columbia second and Quebec third. Alberta showed the greatest proportional increase in 1921.

TABLE I

Provinces	1919		1920		1921	
	Birds	Breeders	Birds	Breeders	Birds	Breeders
British Columbia	1,625	10	2,488	16	2,580	25
Alberta	24	2	45	1	662	16
Saskatchewan	120	1	363	3	418	5
Manitoba	203	3	25	1	214	5
Ontario	1,086	26	2,576	33	5,065	40
Quebec	869	8	1,503	16	2,065	18
New Brunswick	180	4	400	7	275	4
Nova Scotia	83	2			190	4
Prince Edward Island	246	11	111	4	110	5
Totals	4,436	67	7,511	81	11,579	122

The second annual report has been in even greater demand than the first one. Entrants report it a great help in making sales of hatching-eggs and day-old chicks from certified birds, at remunerative prices. Reports indicate that many breeders who have certified birds find a ready market for their progeny at double the price that can be obtained for the progeny of non-certified stock.

Table II taken from the second report gives a summary of the results in each province. British Columbia leads in the percentage of birds qualifying for certificates. The percentage of birds qualifying for certificates is somewhat higher than in the first year, due to the better quality of the birds entered, and the fact that each bird's record commenced with the first egg laid in the trap-nest, instead of on the first of a given month, as was the case the first year.

TABLE II

Total Entered	Total Banded	Qualified R.O.P.	Qualified Advanced R.O.P.	Withdrawn	Died	Failed to Qualify
British Columbia						
1488	2,488	979 39·3%	169 6·8%	864 34·7%	199 8%	277 11·2%
Alberta						
45	44	0	0	44 100%	0	0
Saskatchewan						
363	354	104 29·4%	3 1·8%	64 18·1%	52 14·7%	131 37%
Manitoba						
25	20	8 40%	0	0	2 10%	10 50%
Ontario						
2576	2,539	525 20·7%	89 3·5%	1,188 46·8%	197 7·8%	540 21·2%
Quebec						
1503	1,448	228 15·7%	16 1·1%	854 59%	143 9·9%	207 14·3%
New Brunswick						
400	400	82 20·5%	7 1·7%	139 34·7%	34 8·5%	138 34·6%
Prince Edward Island						
111	110	16 14·5%	3 2·7%	29 26·4%	9 8·2%	53 48·2%
Canada (Totals)						
7511	7,403	1,942 26·2%	287 3·9%	3,182 43%	636 8·5%	1,356 18·4%

The work is gaining in favour rapidly. Public opinion is behind it, due largely to the fact that confidence has been established in the accuracy of the records. This has been the result of careful, intensive methods of checking, both through the inspection staff and in the office. The organization has been much improved during

the past year. Some inspectors who proved unsuited to the work have been replaced. The clerical end of the work has been developed and a constant endeavour made to devise and apply new checks to the reported productions of the birds. Much headway has been made in this respect, but in order to attain greater results in this direction, additional clerical help is necessary.

Another phase of the work, which has probably not been considered other than by those in immediate charge, is the opportunity presented to gather and publish statistics of the most valuable nature. In all, 23,526 birds have been entered to date, in Record of Performance. Every province is represented. From the daily reports of production of these birds—far greater in number than are available to any other workers—data could be compiled and published in regard to effect on the total egg production, of date of maturity, size of egg, time of starting to lay, etc. These are problems of great economic importance which are occupying the chief attention of the foremost poultry investigators the world over. Where other investigators must confine themselves to their own localities and count themselves fortunate if they have available one-tenth the trap-nest records mentioned above, those in charge of Record of Performance already have thousands of such records from every part of Canada to study. This opportunity to compile data and information of great economic value to poultrymen in every section of Canada, is not being overlooked.

EXHIBITS

The past year has proved one of the most successful experienced for the Branch's poultry exhibits. Egg and poultry exhibits have been staged at the following large exhibitions and poultry shows:—

Nova Scotia—Halifax, Stellarton, New Glasgow, Truro, Amherst; New Brunswick—St. John, Fredericton, St. Stephen, Chatham; Quebec—Valleyfield, Three Rivers, Sherbrooke, Quebec, Ste. Scholastique, St. Casimir (Portneuf Co.); Ontario—Toronto, London, Ottawa, Lindsay, Newmarket, Markham, Norwood, Bobcaygeon, New Hamburg, Exeter, Ailsa Craig, Drumbo, Milton, Burford, Caledonia, Rockton, Monkland, Moose Creek, Kirkhill, Lancaster, Cornwall Centre, Greenfield, Alexandria, Martintown, Renfrew, Glasgow Station, Westmeath, Douglas, Queens Line, Beachburg, Dundas, Kitchener, Hamilton, Galt, Brantford, Guelph, Woodstock, Waterdown; Manitoba—Brandon; Saskatchewan—Regina, Saskatoon, North Battleford, Prince Albert; Alberta—Calgary, Edmonton, Red Deer, Camrose; British Columbia—Vancouver, Chilliwack, New Westminster, Victoria.

Judging by the applications for literature and also the requests being constantly received for exhibits, this means of placing the general public in touch with the work of the branch is still the most popular. Through the medium of exhibits many thousands of people each year glean some idea of what is being attempted in an educational way, and the interest does not by any means stop when a person has given his or her name and address for the purpose of receiving departmental publications. Letters received direct are proof of this.

During the past year exhibit material has also been used for another purpose, namely, that of assisting retailers to make attractive window displays in connection with sale of graded eggs. In the instance of the St. Lawrence market, Toronto, exhibits and candling demonstrations have been staged and talks given on the purchase of a graded product to several thousand people.

One of the very attractive features in connection with exhibits staged during the past year has been the use in connection with exhibits of live birds, good and poor specimens from the standpoint of production of the varieties most popular in the particular district in which the exhibit was being staged.

The use of moving pictures in connection with exhibits is developing very rapidly. It is not possible, however, to stage the pictures at all exhibitions at the

present time on account of the projection machines not being sufficiently powerful to overcome the daylight which cannot be entirely excluded from the screen. This matter, however, is receiving attention, and it is anticipated with a more powerful machine and special screen that arrangements can be made to give satisfactory pictures in daylight.

Stock Yards Service Division and Markets Intelligence

The department, through the Stock Yards Service Division and Markets Intelligence Service, undertakes to regulate the ways and means by which live stock is bought and sold on public stock yards, and as well to further stimulate confidence in production and bring about systematic and intelligent marketing, through the medium of an official source of information as regards local, provincial, federal and foreign supply and demand in live stock and live stock products.

The stock yards work is being accomplished through federal control of stock yards as provided under the Live Stock and Live Stock Products Act, 1917. Under the Act, all public stock yards in the Dominion are subject to federal supervision as regards construction, equipment and operation. The provisions under the Act are enforced through officers of the Live Stock Branch, stationed at the stock yards at Montreal, Toronto, Winnipeg, Moose Jaw, Prince Albert, Calgary and Edmonton, under the direction of the Dominion Supervisor of Stock Yards. The Markets Intelligence phase of the work is provided through the stock yards officers and their clerical and technical assistants at the yards, in conjunction with the Markets staff at the Live Stock Branch, Ottawa.

The enforcement of regulations made under the Live Stock Products Act of 1917, has resulted in the bonding of all commission men, operating on public stock yards; the organization and reorganization of Live Stock Exchanges; the standardization and approval of the rules and regulations under which Live Stock Exchanges operate; standardization of all charges made on the yards by the Stock Yards Company or by commission men, and improvements in the accommodation for live stock.

In continuation of the policy of supplying the producers of live stock with an official Markets News Service, officers of the Branch, located at the central stock yards at Montreal, Toronto, Winnipeg, Calgary, Edmonton and Prince Albert, undertook the classifying, grading and pricing of all live stock offered for sale, obtained detailed information as to the origin and disposition of the stock and procured data on the general condition of supply and demand.

Purchasers of live stock under the Carlot and Free Freight policies of the branch were again given assistance by the stock yards representatives. The activities of the agents greatly facilitated the movement back to country points.

The Daily Markets Telegraph Service inaugurated in 1919 was continued. This consisted of analysis of the condition of supply and demand, telegraphed over the wires of the Canadian Press, Limited, for publication in the daily press of Canada. These wires were prepared by the officers at each of the yards, at 11 a.m. and 4 p.m. daily, and appeared the same evening and the following morning in practically every evening and morning paper in Canada. These have already been conceded an important place in commercial circles.

The Inter-Stock Yards Telegraph Service inaugurated during 1919, consists of an exchange of market wires between stock yards, so that a knowledge of trade conditions on one market may be available on all other markets as soon as the day's trading is established. These telegrams are prepared by the stock yard agents after a careful analysis of the conditions of trading and then wired each day as early as possible to other yards in Canada. Previously only firms which could afford to have a private telegraph service, were able to benefit by a knowledge of conditions at other than their own operating yards.

The stock yard offices again supplied the local daily press with daily market news, letters and representative live stock sales. The need for absolute accuracy in these reports has resulted in a high quality of material being produced and together with the extended weekly and monthly analysis of supply and demand they have practically supplemented all other sources of markets information. The effect has been the absolute standardization of market reports throughout the Dominion, where, heretofore, many contradictory and unreliable statements of market conditions were circulated.

The weekly markets news service was continuously prepared and mailed to the agricultural press of Canada, to district representatives of agriculture, to a selected producers' mailing list, and to the various provincial Departments of Agriculture. This service consists of an analysis of supply and demand during the current week; statistical tables showing the grading, numbers, average price, price range for bulk of sales, and top price of all live stock offered for sale and, as well, the disposition and comparative receipts of the same.

These reports cover separately each stock yards in Canada. Monthly statistical statements and comments on supply and demand during the month, follow up the weekly report. A statement outlining the general conditions of supply and demand on the following month of previous years, was also supplied. The object of this is to provide producers with full particulars of the condition governing markets during the recognized marketing seasons over a period of years, so that they may liquidate their stock in as intelligent a manner as possible.

Each week, publicity was given to the live stock industry by the distribution of interesting information on the live stock and allied industries, as regards both domestic and foreign fields. This information is distributed through the regular mailing list and over the wires of the Associated Press.

During the year numerous articles touching on the live stock industry were prepared, either voluntarily or by request, for publication in the farm press.

Statements on local and general live stock conditions were prepared during the year for producers, the packing industry and such institutions as banks, railroad companies, etc.

Memoranda on production, distribution and consumption of live stock and live stock products, both domestic and foreign, were prepared for the information of officers of the department.

The branch continued the building up of an extensive information service with reference to the statistical condition of the following: local production and distribution of live stock; conditions of local production; general condition of live stock production and distribution in Canada; foreign live stock situation; world's animal food stuffs and feed stuffs situation; import and export trade in live stock and live stock products; and financial conditions in respect to agriculture.

The service continued the recording of the point of origin, class, grade and sex, of every head of stock offered for public sale at stock yards. It is estimated that the total marketings for the year were in the neighbourhood of three million head. The records cover the sales made during the past five years and are compiled in such a way as to be of tremendous value in estimating the condition and extent of the marketable surplus either locally, provincially, or in the Dominion, at any period of the year. It is obvious that policy to bring about better conditions as regards production for markets and marketing will be given excellent direction through the medium of these records. No other country has such detailed information on marketings of live stock.

In order that the weekly agricultural newspapers and financial and trade journals might have the most up to date market information obtainable, a special market wire is prepared on the opening market of each week, by the stock yards representative, and sent to the farm press in time for publication in the current

issue. The good opinion which the farm newspapers have of this Market Service is manifest in the fact that this special wire is paid for by the newspapers and at their own suggestion.

Extension of stock yards service was made during March 1920, through the appointing of a stock yards agent at the new stock yards, Prince Albert, Saskatchewan. These yards are situated close to one of the most promising feeding areas in Western Canada.

The administration of the policy whereby immature calves offered for sale on public stock yards are subject to condemnation was administered by the stock yards representatives.

During 1920, the branch was successful through the co-operation of the Canadian packers, in obtaining weekly statements from the various plants throughout the Dominion, covering private or country purchases, by shipping points. As from 40 to 60 per cent of the annual marketings of hogs go through direct to inspected establishments, the value of the information obtained can be appreciated. This information is recorded in a similar manner to stock yards sales.

The various companies which supply "patent insides" or "boiler plate" to the local country newspapers, have been provided with a weekly review of the live stock markets. This was undertaken in order to further circulate reliable markets intelligence at country points.

The Markets Intelligence Service undertook the editing and distributing of a weekly analysis of the wool market situation, prepared by officers of the Sheep and Goat Division.

The machinery of producing detailed reports on local shipments of live stock was perfected during the year and reports are now being prepared and mailed periodically to interested parties. The reports consist of the classification and grading of all classes of meat animals shipped by drovers, packers, buyers and farmers organizations, from all shipping points in Quebec, Ontario, Manitoba, Saskatchewan and Alberta.

The stimulation of efficient marketing practice was further effected during the year through the appointment of a stock yards agent at the public stock yards at Moose Jaw, Saskatchewan.

During April, 1921, the Canadian export trade in live cattle was resumed with Great Britain. In order that the project might be intelligently prosecuted, the Live Stock Branch sent a representative to Great Britain to investigate the possibilities of the trade and fully report on conditions under which Canadian cattle are handled and distributed and means whereby the movement might be further stimulated. A detailed report on conditions together with recommendations for the further development of the trade was prepared following the overseas trip. Copies of the report were distributed to the daily and farm press throughout Canada.

Whilst in Great Britain, the officer of the branch arranged for a weekly cable service on the British market for Canadian cattle and bacon. The information is being supplied by the most reliable operators on the market at Glasgow, Liverpool and London. These cables are edited in the branch and given the widest publicity through the medium of the Associated Press of Canada.

A very strong connection was also made with British firms interested in the possible resumption of Canadian trade in store cattle, with importers and distributors of Canadian fresh-killed beef and with distributors of Canadian bacon. A mutual exchange of correspondence on the various phases of the market situation in Canada and Great Britain between the Branch and the above mentioned parties has resulted and has already established a clearer understanding of the problems involved in the export trade in relation to the British market.

Through arrangements made between the Departments of Agriculture and the Department of Customs the branch is now receiving through the courtesy of the Customs Department, statements covering the origin and destination of all classes

of live stock exported from the Dominion. The obtaining of this information completes the scheme for obtaining a full record of the movement of Canadian live stock during any period of the year.

The energies of the division will be directed strictly to the further development of the policies now in effect. The aim will be to enlarge on the present policy particularly in the way of affording protection to the producer, shipper, and sellers of live stock and as well, in this connection to give as much publicity to the whole processes of supply and demand as possible.

Special attention will be paid to markets information on the hog industry and bacon trade in an effort to contribute to the success of the aggressive policy recently adopted, which has for its aim the stimulation of the Canadian export trade in bacon through the production of a standard type of hog paid for on a quality basis.

Steps have been taken so that in the event of the British embargo on store cattle being removed the Branch will undertake to keep prospective shippers informed as to supply and demand and method of shipping. Also information will be available which will enable those wishing to ship to get into direct touch with reliable firms in Great Britain, a list of the latter now being available in the Live Stock Branch.

Sheep and Swine Division

INTRODUCTION

Although lower market values prevailed for lambs, sheep, hogs and wool, relatively speaking, prices for these commodities were among the highest and most profitable of those pertaining to live stock. As the season advanced farmers appeared to have adjusted themselves to the new level of values and faced the situation by paying closer attention to general improvement in quality, greater use of purebreds and closer adherence to the policy of co-operative marketing. It is true that some flocks of sheep have been sold out but it is noticeable that the owners were largely amongst those who had commenced operations during the war period. Many new flocks have been started by men who have taken advantage of low prices for good grade ewes and the established sheep raisers, whilst probably culling a little closer, are maintaining their flocks at average numbers.

CO-OPERATIVE SHEEP AND LAMB MARKETING

Owing to uncertain marketing conditions, co-operative shipping was much more difficult than during 1920. The drought in Quebec caused early shipments of fairly large numbers of lambs, a large percentage of which were light and unfinished. These early shipments began to arrive in considerable numbers before last year's stocks of mutton were cleared, with the result that the market for lambs, particularly at Montreal, became more or less demoralized and remained so during a good part of the season. Fortunately, a good demand existed for Canadian lamb in the United States and the competition provided helped to maintain prices at a fairly profitable level in Canada.

Co-operative shipments were for the most part confined to the marketing of lambs from ram clubs and from districts where docking and castrating permitted marketing straight carlots of ewe and wether lambs. Associations that had previously marketed were given assistance where necessary. A new feature of the work was the selling of dressed lambs from the Pontiac and Gatineau associations in Quebec. These associations made arrangements to have their lambs slaughtered and wholesaled to the butchers in the city of Ottawa, and handled seventeen carloads of lambs and two carloads of sheep in that way. This was a move to effect more direct sale from producers to consumers. Satisfactory results were obtained but a further benefit would result to farmers if carcasses could be sold on city markets cut into the regular retail cuts rather than in quarters as required at present.

The following is a statement of co-operative shipments for sheep and lambs:—

—	No. of Cars	No. of Head	Value
Prince Edward Island	43	4,176	$ 29,666 26
New Brunswick	22	2,112	12,575 65
Nova Scotia	24	2,755	16,423 16
Quebec	42	3,860	24,910 61
Ontario	9	932	7,922 00

DIPPING, DOCKING AND CASTRATING DEMONSTRATION WORK

Demonstration, in dipping, docking and castrating have proven one of the most effective means of creating greater interest in modern methods of sheep management. Failure on the part of farmers to dip has resulted in higher costs for maintenance of the flock besides loss in weight of wool and lambs. Neglect to dock and castrate has seriously affected the market price as is shown by the fact that straight carloads of ewe and wether lambs have invariably brought a cent to a cent and a half per pound above normal market values. Demonstration work along these lines was centralized in districts in the counties in which it was undertaken and was associated in so far as possible with the placing of purebred rams. In this way the farmers were encouraged to ship co-operatively and could estimate the value of such work in dollars and cents. The carrying out of these demonstrations was greatly facilitated by the co-operation of the provincial agricultural representatives and agronomists.

The following table outlines the extent of demonstration work by provinces:—

Province	No. of Demonstrations	Attendance	No. of meetings	Attendance	No. of sheep dipped	No. of lambs docked and castrated
Prince Edward Island and New Brunswick	159	795	57	3,500	7,083	7,009
Nova Scotia	183	1,281	51	1,479	6,979	3,645
Quebec	250	11,835	200	23,000	3,000	3,200
Ontario east	36	252	10	310	3,245	200
Ontario, west	403	8,871	27	2,396	16,022	2,230
Manitoba	12	72	43	2,262	..	..
Alberta	....	....	10	750	....	....

In Western Canada demonstration work has not been so essential, especially on the ranges. However, with the advent of the small flock on many grain farms similar work is becoming necessary if the best returns are to be secured and already a start has been made in a few districts in Manitoba, northern Alberta and British Columbia

CO-OPERATIVE MARKETING OF WOOL

The policy of grading wool for Co-operative Wool Growers' Associations was continued in 1921. All western wools were graded at Weston, Ontario, while eastern wools were handled at Guelph, Smiths Falls, Lennoxville, Fredericton, Charlottetown, Truro and Antigonish.

During the grading season of 1921 four expert wool graders were employed temporarily and together with two permanent graders, performed all the grading.

The strict grading commenced in 1920, naturally met with considerable opposition at first, but has proved to be of great benefit in that the interest of manufacturers in Canadian wools has been increased to a great extent. During 1921 the standard set up in 1920 was followed, and, from the number of new customers reported by the Canadian Co-operative Wool Growers, and from expressions of opinion from textile manufacturers, it would appear that the practice of strict grading was a very important factor in the sale of wool on a dull market.

The graders were instructed to report unusual irregularities in the wool clips offered by contributors and these were analyzed with a view to making suggestions for improvement, either as regards breeding or as regards care and management. The average of wool clips from the different provinces is being analyzed with a view to making suggestions for the instigating of provincial policies which will tend to raise the average of the grades.

The eastern wools on the whole graded out well. A few districts were lacking in preparation, some others showed a need for improved blood in the flocks, while others apparently were careless in the feeding and management of the flocks, evidenced by too high a percentage of vegetable matter in the wool.

In Western Canada the range wools were an exceptionally good lot. A few consignments showed a percentage of brashy fibres, especially in fleeces of older ewes, which indicates the necessity of closer attention to culling and systems of breeding. Consignments from the grain farming sections were somewhat improved over last year but there is still much room for improvement, especially in the elimination of seeds and chaff. The following statements show the amounts of the various grades of wool indicating whether western or eastern, range or domestic, also the total amounts graded by associations and by provinces.

Wool Graded, 1921

Eastern Domestic Wool—		
Prince Edward Island	29,671	
Nova Scotia	47,663	
New Brunswick	40,610	
Quebec	111,793	
Ontario	727,752	
		957,489
Western Domestic Wool—		
Manitoba	202,476	
Saskatchewan	471,741	
Alberta—		
Central Alberta Wool	42,958	
Alberta Prov. W. Grs.	116,663	
Alberta S. Breeders	168,570	
British Columbia	86,443	
		1,088,851
Western Range Wool—		
Southern Saskatchewan	183,222	
Southern Alberta	1,586,665	
Verm. Wool Growers	41,096	
Pincher Creek	15,502	
		1,826,485
Grand total (Lb.)		3,872,825

Wool Grading, 1921

	Assn. Total	Prov. Total
Prince Edward Island		
Prince Edward Island Sheep Brs.	29,671	29,671
Nova Scotia—		
Antigonish Wool Growers	10,159	
Truro Wool Growers	36,987	
Sundry shipments	217	
		47,063

New Brunswick—		
New Brunswick Sheep Brs	40,610	40,610
Quebec—		
Argenteuil Co	6,711	
Beauharnois	5,334	
Bedford	5,467	
Compton	16,019	
Ottawa	16,443	
Pontiac	25,143	
Richmond	11,389	
Sherbrooke	14,217	
Stanstead	11,070	
		111,793
Ontario—		
Howland Assn	15,467	
South Manit	23,916	
Ontario Sheep Brs	685,965	
Sundry shipments	2,404	
		727,752
Manitoba—		
Manitoba Breeders	202,476	202,476
Saskatchewan—		
Saskatchewan Breeders	471,741	
South Saskatchewan Wool Growers	183,222	
		654,963
Alberta—		
Alberta Sheep Breeders	168,570	
Alberta Provincial Sheep Breeders	116,663	
Central Alberta Wool Growers	42,958	
South Alberta Wool Growers	1,082,154	
Pincher Creek	15,502	
Vermilion Wool Growers	41,096	
	1,466,943	
Herringer	.....	
Sarnia Ranch Co	.....	
Harvey	504,511	
W. Stock Ranches	.....	
Lethbridge	.....	
Knight & Watson	.....	
		1,971,454
British Columbia—		
British Columbia Wool Growers	86,443	86,443
Grand total (Lb.)		3,872,825

Grade	Eastern Domestic	Western Domestic	Western Range
Fine combing	28	737	30,633
Fine clothing	8	4,814	32,972
Fine medium combing	1,852	23,867	395,985
Fine medium clothing	2,193	36,658	175,377
Medium combing	128,534	154,724	498,870
Medium clothing	31,433	147,380	227,735
Low medium combing	335,793	389,394	301,260
Low medium clothing	762	8,376	111
Low combing	220,619	102,213	56,090
Low clothing	479	1,082	
Coarse	130,706	18,168	10,662
Mohair	4,281	1,403	140
Medium grey and black	4,454	4,710	2,015
Coarse grey and black	1,747	868	145
Fine burry and seedy	1,209	7,378	16,845
Medium burry and seedy	35,709	31,500	24,952
Hard cotts	13,008	2,772	140

Grade	Eastern Domestic	Western Domestic	Western Range
Soft cotts	18,111	17,905	867
Fine pulled			
Medium pulled	279	13	75
Fine dead	142	139	684
Medium dead	2,710	1,334	2,811
Murrain	54	359	420
Damaged	448	400	1,614
Sweepings	211	265	480
Fine tags	283	453	3,117
Medium tags	6,127	13,955	25,497
Washed tags		44	
Sisal	3,110	16,686	1,857
Sisal black		7	
Low black sisal		50	
Kempy		1,185	419
Coarse kempy		85	
Damp and musty	2,010	14,367	4,962
Tubwashed	1,389	128	255
Fine washed	1,960	1	
Seedy tubwashed		26	
Low washed	49		
Medium washed	201		
Coarse washed	3,037	1	
Fine med. clothing washed	23		
Washed fleece staple grade	59		
Fine black		1,011	5,356
Low black		65	5
Seedy black	6	1,057	209
Coarse seedy black		102	
Fine seedy black		17	
Ontario black	85		
Medium black washed	4		
Fine seedy		6	
Slightly seedy		58,462	49
Hard seedy		10	
Heavy seedy		665	
Purry		1,319	
Burry and seedy		578	
Slightly burry and seedy	502	16,270	823
Coarse burry and seedy	148		
Black burry and seedy		33	
Fine burry black			20
Medium burry black			10
Southdown	2,870		
Bucks	33		
Medium seedy dead		18	
Seedy dead	60	1,390	2,280
Burry dead	110		
Burry locks			414
Seedy locks	2		91
Medium locks	2		
Locks and pieces	401		
Coarse hard cotts	246		
Black cotts		6	
Seedy cotts		242	
Pulled	2		
Fine Grey		20	
Low grey and black		46	
Seedy grey and black		204	
Fine grey and black		93	272
Low Karakule		18	
Coarse grey and black Karakule		207	
Karakule black		377	
Low Karakule black		3,036	
Medium Karakule black		91	
Seedy Karakule black		17	
Seedy mohair		34	2
Tubwashed mohair		10	
Total	957,489	1,088,851	1,826,485

ENCOURAGEMENT OF CO-OPERATIVE WOOL MARKETING

Part of the time of the sheep and swine promoters was taken up in work calculated to encourage and increase the co-operative shipment of wool. This work was accomplished by attendance and addresses at wool growers' annual meetings held during the winter months, at short courses and by demonstrating the shearing and preparation of wool for market during the shearing season. At many of the short courses, annual meetings and other places demonstrations in wool grading were given. Assistance was also given to local associations in the collecting and shipping of wool.

The prevailing low prices for wool made assistance in co-operative wool marketing very difficult, and had a tendency to curtail co-operative shipments. Furthermore, there appeared to be a growing tendency in the direction of home manufacture.

BOYS' AND GIRLS' SWINE CLUBS

A definite policy for boys' and girls' swine clubs was inaugurated in 1921 in order that effective work might be undertaken in developing community breeding of hogs, thereby effecting improvement in quality, also by paying special attention to marketing to secure recognition in price for breeding and finishing. Under this policy each club selected one breed of hogs and each member agreed to purchase two or preferably three hogs, one of which would be retained as a brood sow while the barrows would be finished for market. Provisions were made for exhibiting at the local fair and later for the shipping of a carlot of finished hogs to market where the various carlot entries would compete and prizes be awarded. Club members are also encouraged to visit the market at the time the carlots are shipped in order that they may see the hogs sold, study stockyard practice, visit the packing plants and participate in the swine judging competition.

The policy was inaugurated rather too late in the season to attain large proportions this year. However, with the assistance of the Provincial Departments of Agriculture, clubs were organized and carried forward successfully in Quebec, Ontario, Manitoba, Alberta and British Columbia.

The supply of pigs for the clubs was specially selected and, while in some cases, the pigs were available in the district, in other cases, the entire supply had to be purchased outside the club area. The sows retained by club members will be bred for spring litters. The surplus of pigs produced from sows in clubs already organized will be used as a basis of supply for new clubs next spring. In order that a high standard might be maintained in the progeny from these sows, the branch on request, has loaned a boar to a number of the clubs, for the use of club members.

The pigs when finished and shipped to market as carload lots were outstanding as regards uniformity, breeding and finish, although in several cases there was room for improvement, owing to the scarcity of young pigs last spring, necessitating a minimum number to select from. The boys and girls have taken a keen interest in the work from start to finish and there is every indication that the project will reach much larger and more general proportions next year; in fact, a large number of requests have already come to hand for information in organizing and already a considerable number of new clubs are in the process of organization and sows are being selected for breeding this fall.

The following table outlines the scope of the club work for 1921 showing number of entries at local fairs, number of carlot entries, number of contestants in judging competitions and prize moneys paid:—

CARLOT ENTRIES

Province	No. of carlots	No. of hogs	Selling price	Amount in prizes
			$ cts. $ cts.	$ cts.
Quebec	8	485	7 00—11 00	595 00
Ontario	3	60	7 50— 9 60	105 00
Manitoba	5	150	11 50—16 60	200 00
Alberta	3	120	9 00— 9 25	150 00
British Columbia	5	113	.....	200 00

LOCAL COMPETITIONS

Province	No. of clubs	No. of Entries	Amount in prizes	L.S.B. paying one-third
			$ cts.	$ cts.
Quebec	12	217	1,409 00	469 66
Ontario	*2	12	57 00	19 00
Manitoba	6	72	382 00	127 33
Alberta	4	58	346 00	115 32
British Columbia	4	40	217 00	72 33

*Only one club had local competition.

SWINE JUDGING COMPETITION

Province	No. of Entries	Amount in Prizes
		$ cts.
Quebec	52	25 prizes 325 00
Ontario	10	10 " 55 00
Manitoba	112	25 " 325 00
Alberta	12	12 " 234 00
British Columbia—No competition.		

SWINE EXTENSION ACTIVITIES

In Western Canada where there is an abundance of rough grains which, at present prices, are difficult to market with a reasonable margin of profit, hogs are again coming into popularity and many districts are naturally concerned about starting with a breed that will prove economical from the standpoint of production, and profitable from the standpoint of market type. The Peace River District in Alberta, which is perhaps the farthest removed from market, was anxious to evolve a policy that would ensure continued success in swine raising. Following a number of meetings which were held in June, the farmers appeared unanimous in their decision to produce bacon hogs, and organization began with this object in view. During the fall fifty-three pure-bred Yorkshire boars and sixty-nine pure-bred sows were purchased by farmers in the district. These purchases will provide the nucleus for the breeding stock of the district and will tend to insure the marketing of a superior bacon hog. Work of a similar nature, though on a smaller scale, has been started in a few other districts.

CO-OPERATIVE SWINE AND CATTLE MARKETING

Some twenty-two cars of hogs, four cars of calves and eleven cars of cattle were shipped co-operatively from the Maritime Provinces and one car of hogs co-operatively from Quebec. The co-operative shipment of cattle was not encouraged excepting for the surplus above the demands of the local market. Cattle prices were so low during the year that unless a fairly good grade of stock was shipped there was very little left after freight and marketing expenses were deducted, especially in districts far removed from market. The marketing of good veal calves seemed to offer possibilities for the development of a large field of effort. A few well finished veal calves of the right weight and size brought better returns than older cattle of inferior grade and quality. This suggested the advisability in dairy sections at least, of finishing the dairy steer and heifer calves for prime veal at six weeks to three months of age rather than carrying them over and marketing at a later date as grass calves or as yearlings and two-year-olds. A new venture was the shipping of seven cars of cattle and one car of sheep from Nova Scotia to St. Johns, Nfld., where a good market was found for a limited supply.

Co-operative shipments of hogs, especially from Prince Edward Island, were very successful and netted the farmers a gain of one to two cents a pound above local quotations. The co-operative shipments removed all possibility of congesting local markets and helped maintain local prices at a higher level.

SHORT COURSES IN SHEEP AND SWINE MARKETING

A new phase of activity developed in 1921 was the holding of sheep and swine marketing courses. Seventeen were held in Ontario and were outlined to cover the outstanding phases of co-operative marketing in relation to sheep and swine. Each course covered three full days. Practical demonstrations were given on judging market classes of lambs and hogs, judging dressed carcasses, proper methods of cutting carcasses, selecting breeding stock, wool grading, preparation of wool for market and modern problems in management. Lectures were also delivered on co-operative marketing, feeding and management, and present-day problems of the sheep and swine industry.

In several cases the courses were concluded with a lamb banquet. Canadian lamb was served with a view to popularizing lamb as a meat. Prominent speakers were secured to give addresses on current topics. Moving pictures also added to the enjoyment of these evenings.

In Alberta, Manitoba, Quebec and at several points in the Maritime Provinces courses of a similar nature but on a less extensive scale were conducted and were well received, particularly a series held in the Peace River District of Alberta, where 2,300 adults attended the short course demonstrations and meetings.

RAM PREMIUM POLICY

To date the first premium has been paid on a total of 981 rams and the second premium on a total of 467 rams covering the two years in which the policy has been in operation. Men receiving the first premium have qualified or will qualify for the second premium, indicating that the regulation covering docking and castration is having practical results. The premium policy has probably attained more effective results this year than in the past because on account of falling prices and general scarcity of money among farmers there would have been a tendency to continue the use of the scrub ram. The drop in pure-bred prices to levels proportionately with wool and lambs and the application of the premium policy has counteracted this tendency and made it possible to encourage the wider use of pure-bred rams with the result that more new applications have been received under this policy in 1921 than for any previous year.

This policy has also been a very effective means of encouraging docking and castrating. Many farmers desiring the second premium have applied for demonstrations and these, when held often, led to the general practice of docking and castrating in the district, thus effecting a marked improvement in the appearance of the lambs.

The following table gives the number of applications for premiums received from each province, indicating also the breeds of rams purchased:—

FIRST ANNUAL PREMIUMS PAID

Breed	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Oxfords	6	30	23	179	50	1		6	1
Shropshires	3	17	6	113	46				
Hampshires	4	3	1	45	3				
Leicesters	3	1	6	68	14	1	1		
Lincolnshires	1		1						
South Downs		1		2	3				
Cheviots		1	2	5					
Dorset Horn			1						
Suffolk					1				
Cotswold				2					
	17	53	40	414	117	2	1	6	1

Total—651

SECOND ANNUAL PREMIUMS PAID

Breed	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Shropshires	13	21	12	73	20			5	3
Leicesters	5	1	6	53	5	1	1		
Oxford	5	12	28	57	52	6	5	6	2
Hampshires	1	5	5	27					1
Lincoln	2			1	4				
South Downs									
Cotswold		1	1	1	1				
Cheviot		1	7	8	1				
Dorset			3		4				
Suffolk							1	1	1
	26	41	62	218	87	7	7	12	7

Total—467

SHEEP FEEDING COMPETITION

These competitions were arranged for in co-operation with the Quebec Department of Agriculture, with a view of encouraging better feeding and management of our flocks in order that the pure-bred rams and ewes which are gradually replacing the common sheep, will receive proper care and attention. It would not seem advisable to encourage our farmers to purchase high-priced pure-bred sheep until there is assurance that they will receive more feed and better management than is generally given at the present time.

The rules governing these competitions allowed any farmer to compete who was the owner of at least ten grade ewes with a pure-bred ram at the head of his flock. Breeders of pure-bred sheep were not eligible to enter. The number of entries in each contest was placed at a minimum of twenty-five and such entries

were required to be given to the secretary of the agricultural society on or before November 15, 1921. Two inspections were made, one in the spring and one later in the season before the lambs were marketed. At the time of the first inspection wherever possible lambs were docked and castrated. During the summer, agronomists made special arrangements for dipping all flocks entered. At the time of the second inspection any improvements noted were credited to the competitor.

The money required for prizes was obtained by grants of fifty dollars given by both the Live Stock Branch and the Provincial Department of Agriculture to each contest. Additional prizes were made up from the entry fee of fifty cents required from each competitor. Prizes for each competition were as follows:—

1st prize	$25 00
2nd "	20 00
3rd "	17 50
4th "	15 00
5th "	12 50
6th "	10 00
7th "	7 50
8th "	5 00
9th "	....
Total	$112 50

SPECIALS

A gold medal was given by Mr. P. Rodrigue, District Sheep Promoter, Live Stock Branch, Ottawa, for the contestant receiving the highest score. This medal was won by Mr. Joseph Jauvin, St. Joseph d'Alma, Lac St. Jean, on an exceptionally well graded flock of Oxford Downs.

A silver cup was given by Mr. X. N. Rodrigue, Instructor in Breeding, Department of Agriculture, Quebec, for the best flock from all the contestants. This cup was won by Mr. Ernest Poulin, St. Come, Beauce county, on a flock of grade Hampshires.

As these competitions were the first of their kind held in the province of Quebec, the number for the year was limited to ten. The results obtained, however, would warrant increasing that number another year. Numerous requests for such competitions have already been received from other counties. It is proposed that the number of entries required for each competition be reduced from twenty-five to fifteen and the organization work be done by farmers' clubs rather than under the auspices of agricultural societies. This would allow of a larger number of competitions and would give preference to districts where ram clubs have been formed. The time required to inspect the flocks over an entire county is an important factor, since the work of inspection must be done within a limited time. It seems advisable also, to make a regulation to the effect that the last inspection be at least eight days before the lambs are marketed. This will allow a better opportunity for marketing co-operatively and thus more fully demonstrate the improvement effected at market points.

The counties in which competitions were organized were: Compton, Sherbrooke, Dorchester, Rimouski, Temiscouata, Charlevoix, Lotbinière, Beauce and Lac St. Jean. The total number of flocks entered was 272, representing 4,080 sheep and as many lambs. The inspections presented an opportunity to discuss the problems regarding the care and management of the flock with individual sheep-raisers and in many instances this had the effect of bringing about improvements before the second inspection was made. This was particularly true in connection with housing and the provision of feeding racks.

RAM CLUBS AND PLACING OF PURE-BRED RAMS

The organizing of ram clubs and breeding centres was further extended in Ontario, Quebec, the Maritime Provinces and Alberta. The most extensive work of this nature was accomplished in Quebec, where four hundred rams were placed with fifteen new clubs. The original idea of placing only rams of one breed with a club has been strictly adhered to, and the extent to which Quebec farmers have accepted this policy is demonstrated by the fact that, although a minimum of twenty-five rams was required for a club, as high as thirty-six rams of one breed were purchased by one club, and for the fifteen new clubs organized the average is considerably above the minimum of twenty-five head.

As a result of the organization of ram clubs in Quebec, a sheep fair was held at St. Georges in which ten clubs participated, exhibiting some two hundred pure-bred rams, and some six hundred market lambs, the progeny of pure-bred rams purchased during 1920. Prizes were awarded for pure-breds of the Oxford, Shropshire, Hampshire and Leicester breeds, and in the market classes prizes were awarded for pens of ten head, pens of five head, and for ram and five of progeny. The entries offered an excellent opportunity for comparison of progeny by breeds and this point was closely studied by the five thousand people in attendance. At the close of the fair the lambs were sold by auction to packers' buyers and commission men. Two carloads were sold at $7.25 per cwt., and four carloads at $6.85 per cwt. (F.O.B. country points); these prices were from 85 cents to $1.25 above local quotations for general stock. The entire six hundred lambs averaged 91 pounds at loading point and were considered ideal from a mutton standpoint. Almost every exhibitor and onlooker noted the uniformity in type, quality in fleshing, increased weight as compared with common breeding and noticeable improvement in wool resulting from the use of a pure-bred, all of which, combined with docking and castrating, added to the selling qualities of the lambs and were jointly responsible for the price obtained. The following is a statement of the ram clubs organized and rams placed in Quebec:—

County	Oxfords	Hampshires	Leicesters	Shropshires	South Downs	Total
Terrebonne	20		5	8		33
Beauce	50	2	6	59		117
L'Islet	10		22	22		32
Rouville			5			5
Frontenac	77	37	5	57	2	178
Lake St. John	18					18
Compton	4					4
Richmond				1		1
Wolfe	2					2
Verchères			4			4
Matane			1	3		4
Rimouski			4			4
Quebec				1		1
Arthabaska			5			5
Totals	181	39	57	129	2	408

In western Ontario the placing of rams was confined mostly to two counties, and thirty-eight head were placed. The success which attended the work in the two counties will undoubtedly reach larger proportions during 1922, especially in a number of the more northerly districts. In eastern Ontario the branch representatives co-operated with the provincial department in the placing of sufficient rams in three counties to ensure co-operative shipments of market lambs of superior type.

Some forty head of pure-bred rams were placed in Cape Breton Island and general assistance was given in effecting exchanges and assisting purchasers in other parts of the Maritime Provinces. A considerable number of rams were also dis-

tributed to farmers in the Peace River district of Alberta where the pure-bred is an essential factor in improving the foundation stock of the ewes which are of average to common breeding.

There appears to be a growing tendency on the part of farmers to eliminate the scrub ram. In provinces where organization has been effected the demand for pure-breds exceeds the supply. Prices of necessity have reacted to a proportional level with market values for wool and lambs, but there is a growing recognition of breeding and quality and the breeder of good individuals should find a ready market at remunerative prices.

GRADING OF PURE-BRED RAMS

As in Prince Edward Island, New Brunswick and Nova Scotia, the sheep breeders in Quebec and Saskatchewan expressed themselves favourable to grading. Consequently, the grading was performed in the four eastern provinces on the same basis as carried out last year in the three Maritime Provinces. In Saskatchewan, grading work of a similiar nature was performed by the Provincial Department of Agriculture after consultation as to methods followed elsewhere. A total of 823 rams were graded by the Live Stock Branch graders.

In provinces where grading has been previously performed, breeders were still keenly interested and in Quebec where grading was undertaken for the first time, the graders report everyone appreciative, anxious to ask questions and seeking information *re* breed type. In many instances, it was apparent that there was a lack of knowledge on many of the fine points in breed type, and wherever possible the graders spent considerable time discussing the good and bad points of the flock in question; even matters of feeding and flock management were discussed repeatedly and suggestions for improvement left with the farmer.

Uniformity in grading from the standpoint of breed type was maintained throughout, although the graders state that owing to apparent divergent opinions which exist as regards types within the breeds, problems often presented themselves which required careful study and thought before making decisions. It is hoped, however, that as a result of this year's grading and the follow up work on the part of the breeders themselves, a slightly higher average of grades will be established during 1922.

As a result of the grading a much wider market for the sale of graded rams was effected within the provinces. Purchasing agents for ram clubs naturally made their selections from graded flocks. Grading also permitted a much wider sale by mail as purchases could be made with the knowledge that an expert had passed upon the flock Grading insured the good breeder against the scrub pure-bred, previously sold to the detriment of high-class pure-breds.

The quality of the rams was designated through the star system. Three star rams were those considered good enough to head a pure-bred flock. These rams were of good size, typical of the breed, with superior conformation, and fleeces of good character, density, quality and weight. Two star rams were those reasonably good in breed type and having sufficient scale; in fact, all rams denoting utility and strength and considered good enough to head a grade flock. The one star rams were those that were not considered good enough for breeding purposes.

The following is a statement of the grading by provinces:—

PRINCE EDWARD ISLAND

Breed	XXX	XX	X
Cheviots	3	.....	.....
Lincoln	1	.....	.....
Shropshires	.....	2	6
Oxfords	.....	2	2
Leicesters	2	3	.....
Total	6	7	8

NOVA SCOTIA

Shropshires	22	24	8
Oxfords	10	10	5
Leicesters	1	4	.....
Southdown	2	2	3
Hampshires	.....	2	.....
Total	35	42	16

NEW BRUNSWICK

Shropshires	3	25	.....
Oxfords	18	8	.....
Hampshires	.....	2	.....
Leicesters	17	12	.....
Cheviots	6	11	.....
Dorsets	.....	4	.....
Cotswolds	.....	2	.....
Total	44	64	.....

QUEBEC

Oxfords	70	40	36
Leicesters	117	152	39
Shropshires	66	35	13
Hampshires	25	11	5
Cheviots	19	15	16
Cotswolds	19	4	3
Lincoln	11	3	..
Total	327	260	112

Grading has already tended to unify type within the breeds and if performed for a number of years will undoubtedly do much to eliminate the scrub pure-bred, encourage the more general use of pure-bred rams and improve the general quality of pure-breds.

DISTRIBUTION POLICY FOR RAMS AND BOARS

In the administration of this policy, discrimination was exercised in dealing with new applications for the loan of rams and special consideration was shown those applications coming from districts where returned soldiers have settled, newly settled districts, and districts where sheep improvement appeared essential.

Members of older associations thoroughly appreciate the advantages of using a pure-bred ram and where Branch rams have reached the end of their period of use-

fulness, little difficulty has been experienced, in encouraging the purchase of rams for individual use, thus ensuring a continuation of flock improvement effected by the rams on loan.

As a result of the discrimination in approving new loans, there has been a considerable restriction in distribution, but a good number of rams are still in service as shown by the following statement:—

Province	Oxfords	Shrop.	Leic.	Linc.	Hamp.	Chev.	Suff.	Ram-bouillet	Total
Ontario	10	10	15	3					38
Manitoba	33	1					1		35
Saskatchewan	2								2
Alberta	3	7							10
British Columbia	3							1	4
Quebec	21	52	39	1	8	9			130
Total	72	70	54	4	8	9	1	1	219

Owing to the fact that the swine industry had recently suffered a severe setback and many districts were under the necessity of starting almost at the beginning again, especially in Western Canada, it was felt that more lenieney should be exercised with regard to the loan of boars in order that farmers would be encouraged to breed the right type of hogs. There has been a tendency to increase rather than decrease the number of boars loaned. The growing movement toward organization of Boys' and Girls' Swine Clubs has resulted in a considerable number of applications for loan to club members and same have been favourably considered. In view of the reviving interest in the swine industry, there is likely to be a much larger demand for the loan of boars during 1922. The following statement shows the number of boars of each breed on loan at the present time, by provinces:—

Province	Berk.	York.	Duroc.	Chester.	Total
Quebec		19		2	21
Ontario		3			3
Manitoba	3				3
Saskatchewan	4	1	3		8
Alberta	2	1	3		6
British Columbia	3	1	2		6
Total	12	25	8	2	47

MILCH GOAT EXTENSION WORK

Apart from British Columbia which is recognized as the leading goat province of the Dominion, considerable interest is developing in milch goats, especially in Ontario. The Ontario Milch Goat Association, which was organized during 1920, has a fairly large membership, and made an excellent exhibit of milch goats at the Canadian National Exhibition, Toronto, during 1921. As a large number of the members are just commencing to establish a flock of goats, the association applied to the Live Stock Branch for the loan of two bucks and were supplied with one Anglo-Nubian and one Saanan, both being purchased in British Columbia. These bucks should do much to improve the Ontario foundation stock and place the breeding of goats in the province on a more solid footing.

There is a big demand for breeding does and as the supply cannot be met in Canada a considerable number of purchases have been made in the United States. During the year a large number of enquiries were answered regarding feeding,

housing and care and management. Many beginners have been advised with regard to purchases and generally speaking the industry has received encouragement in every way possible.

INVESTIGATIONAL ACTIVITIES

Sorting and scouring tests of Canadian wools are again being made. With a view to giving Canadian wools publicity abroad, these tests during 1922 are being conducted at Bradford, England. In this way, a most reliable examination will be secured and the report should indicate how Canadian wools compare with British and other colonial wools sold on the British market.

Realizing that there was a wide spread between domestic, wholesale and retail prices of meats, an investigation was made with a view to analyzing the situation and suggesting remedies. Information secured indicates that there has been a considerable increase in the number of butcher shops operating during the last four or five years. This, however, seems to have had no appreciable effect on the spread between wholesale and retail prices. In cities and towns where farmers are allowed to operate in the sale of cut up meats, there is a more direct sale from producer to consumer and retail prices seem to have been more in line with the prices received by the farmer for the live animal. It was further noted that in cities where the sale of cut up meats is prohibited, the sale of dressed meats in quarters, whether of beef, pork or lamb was made almost entirely to butchers and that, although prices were often very reasonable, the consumer received little or no advantage in price in the purchase of the more cheaply marketed local meats.

Experiments were conducted in a number of packing plants for the purpose of comparing the relative market values of bacon hogs and hogs of the "Thick Smooth" type. Fifty hogs of each type were selected at each of four plants. When killed, dressed and cut up into the regular retail cuts separate weighings were made for each cut and portion and the selling values estimated on the basis of current prices for the various marketable products. These experiments indicated the necessity for feeding to proper weight and finish before marketing. The bacon hogs when properly finished carried a higher percentage of the high priced cuts and had less trim than the "Thick Smooth". The fat was also more evenly distributed and firmer and the lean meat had a wider distribution throughout the body. The difficulty experienced in securing hogs of uniform age and finish and the limited number of experiments conducted, would not warrant a conclusive statement as to the relative values of the two types. However, observations made and data secured would indicate that generally speaking, the bacon hog kills to better advantage and the produce is of superior quality.

SHEEP, WOOL AND SWINE EXHIBITS

Exhibits designed for display at both eastern and western fairs illustrated the development of the home market for mutton, lamb and wool, and the importance of the export trade in bacon.

The extent of imports from New Zealand and Australia was shown, to indicate that there is still room for expansion of the industry if Canada's needs are to be met entirely from the supply of Canadian product. A comparison of the per capita consumption in Canada of lamb and mutton as compared with Britain indicated the possibilities of increasing the wider use of lamb in the Dominion.

The wool exhibits displayed the various classes of woollen products such as are being manufactured by Canadian manufacturers from the common grades of Canadian wool. The correlation of the virgin wool with the manufactured article did much to direct the attention of the Canadian consumer to the quality and style of Canadian goods manufactured from Canadian wools, and this should be effective in creating a larger market for Canadian goods and indirectly a better sale for Canadian wools.

The Canadian bacon trade was depicted as to its present status as a source of supply for the needs of the British market. The factors which built up the Danish industry and enabled her to regain her trade at the close of the war were set forth. Attention was also directed to the possibility of competition from United States sources. Canadian possibilities in hog production were indicated by the vast amounts of rough grains produced while the success of the industry depended upon quality in product, a continuous supply, expertness in manufacture and natural salesmanship.

Attention was also given to featuring market classes in sheep and hogs, finishing for market, diseases, breed improvement and management.

THE SEED BRANCH

The Seed Branch encourages the production and marketing of superior seeds for home requirements and export; maintains analytical services for the testing of seeds, feeds and fertilizers; provides inspection service for the administration of the Seed Control, Feeding Stuffs and Fertilizers Acts; and maintains the Seed Purchasing Commission.

Seed and Feed Testing

During the year April 1, 1921, to March 31, 1922, the number of samples tested at each laboratory maintained at Ottawa, Toronto, Winnipeg and Calgary was as follows:—

	Ottawa	Toronto	Winnipeg	Calgary
Trade	11,556	1,757	2,331	3,995
Customs	2,493	332	1,251	1,605
Official	675	.....	450	188
Feeding stuffs	396	.....	...	7
Trade investigation	475	.....	901	450
	15,595	2,089	4,933	6,245

A new laboratory was opened at Toronto in December with a view to relieving congestion at the Ottawa laboratory and for the purpose of giving more efficient service to Toronto and western Ontario. Unfortunately considerable difficulty is being experienced in finding a suitable officer to take charge of this laboratory.

NATURE OF TESTS

Samples received are listed as Trade, Customs, Official and Investigation, according to the source and object for which information is desired.

Trade samples are those received from merchants, farmers and institutions.

Customs samples are sent by customs officials in connection with the importation Order in Council.

Official samples are those taken by inspectors from lots suspected of being sold in violation of the Seed Control and Feeding Stuffs Acts. Prosecutions are based on the results of analyses of such official samples.

INVESTIGATIONS

During each year much special investigational work is done which involves large numbers of tests not listed in our reports. The following are some of the investigations now being conducted in the various laboratories:—

(*a*) The influence of frost on the vitality of western cereals.

(*b*) Experiments on the longevity of field and vegetable seeds.

(*c*) Effect of heat on the vitality of corn (corn borer investigation in conjunction with the Entomological Branch).

(*d*) Studies of Canadian-grown red clover seed. This work is being conducted in collaboration with European and American workers, and involves a study of the characteristic weed seeds of the red clover seed producing areas in Europe and North America.

(*e*) The value of germination tests as compared with field tests.

(*f*) Study of seed-borne diseases.

(*g*) The testing of standard samples supplied by the European Association of Seed Analysts and the Association of Official Seed Analysts of North America with a view to the standardization, in so far as practicable, of laboratory methods of seed testing.

(*h*) Investigation of the composition of stock foods and tonics sold in Canada.

(*i*) Studies of the materials in ground feeding stuffs together with the best methods of their identification and estimation.

(*j*) Impurities and adulterants used in commercial feeding stuffs.

EDUCATIONAL WORK

Bulletin S-8, Weeds and Weed Seeds, has again been reprinted to meet the constant demand for this publication. In conjunction with the Chemical Division of the Experimental Farms Branch a bulletin on Commercial Feeding Stuffs was published, in which were given the results of a large number of microscopical examinations on samples of feeding stuffs taken throughout Canada.

A bulletin on Seed Testing in North America is at present in preparation, together with several leaflets dealing with the composition of feeding stuffs.

Considerable progress has been made in the formation of a representative collection of feeding stuffs, and of the ingredients used in their manufacture together with the impurities and adulterants most commonly found therein.

MICROANALYSIS OF FEEDING STUFFS

The work of microanalysis has been considerably developed during the past year. This new and highly technical process has been the means of disclosing many evidences of fraud and misrepresentation, and has already proved of value in the control of feeding stuffs offered for sale in Canada.

A large number of feeds, cereal products, legumes, oil meal and medicated feeds have been examined, and considerable misrepresentation in respect to the statement of contents has been revealed. Common adulterants found were: cocoa shell, rice hulls, oat hulls, corn cob, peanut hulls, flax bolls, screenings and plaster. Vital weed seeds in samples designated as "pure" under the Feeding Stuffs Act have been present, in some cases as high as 5,000 per ounce of feed. In other samples there has been as high as 12 per cent of ground weed seeds. Certain feeds contained considerable ergot; others, smut or similar fungi of objectionable nature. A few samples also were found to have been heated; others to have soured or to contain large quantities of ground insect remains, indicating the use of old or inferior grain. Often where chemical analysis indicates an apparently wholesome feed, microanalysis has disclosed the presence of some harmful weed seed or adulterant which in many cases would readily explain the complaints of feeders in regard to the unpalatability or injurious effects of certain feeds.

The results of microscopical analyses of official samples of feeding stuffs taken in various parts of Canada have shown a number of violations of the Feeding Stuffs Act. As a result several prosecutions under this Act are now pending, which it is hoped will have a beneficial effect on the trade in commercial feeding stuffs.

The Seed Division

The reorganization that followed the addition of the Feeding Stuffs Act and the Fertilizers Act for administration by this branch has made necessary some re-alignment of the duties and responsibilities of the principal officers. Formerly the officer who was in direct charge of this division also discharged the duties of chief inspector. Since the district inspectors are now administering three laws, instructions to them are issued by the seed commissioner.

The Chief of the Seed Division devotes his attention to the study of production, to interprovincial or interdistrict commerce in seed supplies, and to the world production and international trade in seeds of all kinds. Laws and regulations applied to the export and import of seeds by various countries have a very important bearing on Canadian seed supply, and in consequence on the regulations that ought to exist to protect Canadian agriculture against inferior seeds from other countries. This forms the particular study of the Chief of the Seed Division.

During the past year excellent progress has been made in the development of seed production centres. The seed fairs that were first organized twenty years ago, and the field crop competitions that were started in the Prairie Provinces in 1906, have been guided, with some unfortunate interruption because of wartime conditions, into a fairly well organized system for the production, assembling, cleaning, grading as to quality, and distribution of superior quality seeds of our principal staple crops. The system of grading of seed supplies has proven to be popular and of much benefit to agriculture. The grade designations for seeds of our principal crops are registered, Extra No. 1, No. 1, No. 2, No. 3, and Rejected. It is now confidently expected that provincial co-operative organizations will proceed to co-ordinate the efforts of their seed growers with a view to a better and more economical system of distribution of the superior quality seeds.

For this spring's planting there has been imported stock seed of three varieties of white clover and three varieties of orchard grass seeds from Great Britain, Denmark and Sweden. These have been placed with a view to the development of seed producing centres for each kind and variety, and in order to create an export trade in these seeds.

Exports of seed supplies were formerly restricted largely to clover seeds that were produced in southern and central Ontario. The area for the production of these seeds has been extended and the quantity for export increased. In addition considerable quantities of our northern-grown superior quality seed grain and seed potatoes have been exported and the demand for them has been increasing. The demand for Canadian-grown fibre flax seed had become depressed for a time, but conditions in this respect are improving.

Importations of red clover seed during the past season gave cause for some anxiety during a brief period. It is generally known that red clover seed of southern origin is not winter hardy in Canada. As a rule comparatively little red clover seed of southern origin is imported into Canada, inasmuch as nearly one half of the red clover seed produced in Canada is available for export. It is anticipated that in future years considerable quantities of southern-grown red clover seed may be offered in Canada at reduced values because of now being placed under severe restriction in other northern countries and states, and it may be considered advisable to provide legislation that will enable this department to safeguard Canadian agriculture in this matter.

Prior to the opening of a laboratory at Toronto the Seed Importation Regulations were administered from Ottawa for all Eastern Canada. Samples are taken by customs officers and forwarded for examination and test, and, except in certain cases, the lots are held awaiting orders as to release, recleaning, or return to the country of origin. The quantity admitted during the past year was 8,592,944 pounds, which, with the imports at Toronto, totals 12,700,679 pounds for Eastern Canada.

Seed control regulations in most other countries have been highly developed during the past ten years. The trend of the trade in many kinds of seeds would seem to indicate that unless our seed control regulations are equivalent to those of other countries we are apt to have on our markets too much of the seed of a quality that cannot be marketed in those countries because of their higher standards and more efficient control. This matter is being carefully studied with a view to bringing our seed control system in all its phases to a level deemed to be necessary in the best interests of our seed users.

Feed Division

The feeding stuffs control work conducted in accordance with the act regulating the sale and inspection of commercial feeding stuffs, bran, shorts, middlings and chop feeds, consists in the registration of the various brands to be offered for sale; the examination of feed products at points of manufacture, distribution and sale; the inspection of methods of labelling and selling; the procuring of official samples for chemical and botanical analyses to determine if the manufacturer's guarantee in respect of chemical contents and ingredients, required to be printed on containers or tags attached thereto, is correct, and whether or not vital weed seeds or deleterious materials are present in excess of the tolerated amounts; and the prosecution of those parties considered guilty of the violation of the law.

All registrations under the Feeding Stuffs Act expire on September 30 following the date of issue, but may be renewed from year to year. From January 1, 1921, at which time the Act came into effect, to September 30 of the same year, registrations were issued to 188 manufacturers covering 570 different brands of feeding stuffs. From October 1, 1921, to March 31, 1922, 193 manufacturers secured registrations on 548 different brands.

In addition to the inspection of feeds at the points of distribution and sale, particular attention has been given to inspection at the points of manufacture, since the primary requirements of the Act concern the manufacturer. Control of the sale of wheat by-products has demanded special attention and consideration. Two causes which have contributed largely to the numerous complaints from feeders during past years regarding by-products obtained in the milling of flour from wheat are: (*a*) the practice of adding to these products the screenings separated from the grain before milling and frequently without recleaning to remove mustards and other fine weed seeds, many of which are not only unpalatable but actually injurious to the health of stock, particularly young animals and (*b*) the gradual reduction in the general quality of mill feeds, attributable partly to improved milling methods which tend toward a more complete separation of the flour from the by-products.

Millers with a capacity flour production representing approximately 42 per cent of the total for Canada are still adding the mill run of ground screenings to their bran, while those adding screenings to shorts represent approximately 67 per cent of the Canadian capacity. Complaints from this practice during the past year have been comparatively rare, since these screenings must now be properly recleaned to remove mustards and other deleterious materials, and ground to destroy the vitality of weed seeds. The products, furthermore, must be registered as commercial feeding stuffs and labelled clearly to indicate the presence of screenings.

Complaints arising from the inferior quality of wheat by-products and not traceable to the screenings content are still common, and with a view to correcting this situation a special investigation of the flour milling industry in relation to its by-products was instituted. Much information and data have been collected which will facilitate a proper classification of wheat by-products and on which may be based suitable minimum standards of quality and chemical contents for each of the several classes.

On the whole, manufacturers have satisfactorily observed the provisions of the act or have promptly and willingly made the necessary adjustments to meet its

requirements where the need for such has been directed to their attention by inspectors. Only in isolated instances, where manufacturers have deliberately aimed to defeat the purposes of the law and escape detection, has it been found necessary to recommend prosecution.

Violations of the Feeding Stuffs Act are detected by quantitative laboratory determinations, and its enforcement is therefore dependent upon laboratory support. Since this act regulates commerce in feeds it is essential that prompt laboratory services be available. Thus far services in respect of chemistry have been obtained through the laboratories of the Department of Health. Only, however, when suitably located and adequately staffed and equipped chemical laboratories are established to serve primarily the requirements relative to the enforcement of the Feeding Stuffs Act and the Fertilizers Act will it be possible to provide the purchasing public with the protection intended under these laws, and at the same time avoid delays and consequent injustice to those whose commerce in feeds and fertilizers is regulated.

Markets and Fertilizer Division

This division compiles and issues seed crop and market reports, renders assistance in seed marketing, supervises the administration of subventions paid through the Seed Branch to the provinces to encourage seed production, and supervises registrations and licenses to sell under the Fertilizers Act.

SEED CROP AND MARKET REPORTS

These reports were issued from time to time during the production and market seasons, the object being to provide farmers with authoritative information that would guide them when buying and selling seed. Only those who demonstrated a special interest in the reports by supplying information were placed on the mailing list to receive them. The farm press co-operated by publishing the reports promptly.

SEED MARKETS EXTENSION

Suggestions were offered and directions given to growers who desired to improve their organization for seed marketing. Blue-print plans, specifications and bills of material for a small capacity seed elevator that would be suitable for operation by a farmers' club were prepared and made available to the public at two dollars per set. The demand for these blue-prints has been satisfactorily large.

FIELD CROP COMPETITIONS

Subventions were paid for field crop competitions in 1921 as follows:—

	Number	Amount
Prince Edward Island	3	$ 263 34
Nova Scotia	6	307 24
New Brunswick	19	2,572 50
Quebec	153	7,859 98
Ontario	162	12,145 00
Manitoba	33	2,126 59
Saskatchewan	29	2,691 69
Alberta	4	250 00
British Columbia	..	.....
	409	$28,216 34

LOCAL SEED FAIRS

The subventions paid on account of local seed fairs were as follows:—

	Number	Amount
Prince Edward Island	..	.....
Nova Scotia	4	$ 162 83
New Brunswick	5	461 50
Quebec	62	2,995 00
Ontario	9	126 00
Manitoba	23	1,025 48
Saskatchewan	42	2,207 16
Alberta	11	538 67
British Columbia	..	.....
	156	$7,516 64

PROVINCIAL SEED EXHIBITIONS

The following subventions were paid on account of provincial seed exhibitions:—

	Place of Exhibition	Amount
Nova Scotia	Amherst	$ 600 00
New Brunswick	Fredericton	277 20
Quebec	Quebec	700 00
Ontario	Guelph	600 00
	Ottawa	600 00
Manitoba	Winnipeg	600 00
Saskatchewan	Saskatoon	442 66
British Columbia		.....
		$3,819 86

By special arrangement the subvention available to British Columbia on account of field crop competitions and seed exhibitions was devoted to encouraging the production of field root and garden vegetable seeds, which, because of climatic conditions, may be grown to better advantage there than elsewhere in Canada. The expenditure for this purpose was $2,500, an equal amount being contributed by the Provincial Department of Agriculture.

ASSISTANCE TO CANADIAN SEED GROWERS' ASSOCIATION

Financial support to the work of the Canadian Seed Growers' Association was continued during the year 1921 to the extent of $10,000 from the Seed Branch appropriation. The last annual report of the association shows 2,702 active growers engaged in the production of registered and improved seeds.

FERTILIZER REGISTRATIONS, LICENSES TO SELL, AND ANALYSIS UNDER THE FERTILIZERS ACT

The total number of brands of fertilizer registered and filed in the division is 2,878; licenses to sell during the calendar year 1922, issued to manufacturers and importers, 519.

Twenty-six samples were taken by farmers under section 10 of the act, and analysis reported to them.

The total fees collected for registrations, licenses and analyses amounted to $10,778.

NUMBER of Fertilizer Manufacturers and Importers, by Provinces and Foreign, who have been assigned Registrations under the Act

Alberta	2
British Columbia	23
Manitoba	5
New Brunswick	3
Nova Scotia	14
Ontario	33
Prince Edward Island	2
Quebec	19
Saskatchewan	..
Foreign	68
Total	169

PRINCIPAL KINDS OF FERTILIZER FOR WHICH APPLICATION WAS MADE

Muriate of potash,
Sulphate of potash,
Nitrate of soda,
Sulphate of ammonia,
Acid phosphate,
Basic slag,
Tankage,
Bone meal,
Cyanimid.

Complete chemical fertilizers of different formulæ.

Complete fertilizer carrying organic nitrogen and phosphoric acid of different formulæ.

Seed Purchasing Commission

The Seed Purchasing Commission has continued to provide service without departing materially from the general plans as adopted in former years. Because of the superior quality of the 1920 oat crop in the province of Alberta and the moderate price then prevailing, about 600,000 bushels of No. 1 seed oats were purchased in March, 1921, for the purpose of holding in reserve as a protection against seed shortage for planting in the spring of 1922. It has proven to be fortunate that this supply of seed oats was available, inasmuch as large quantities have been needed for planting in Eastern Canada, which would otherwise have suffered the results of seed shortage.

It is very pleasant to be able to report that the operations of the commission have continued to be financially successful. The last consolidated balance sheet showed a very creditable net surplus sufficient to cover all operating charges, so that this commission has in no sense been a public charge and is generally recognized to have been of important service to agriculture in all parts of Canada.

Heretofore the operations of the commission have of necessity been restricted to the handling of mixed and impure varieties of seed grain, because it has been found to be quite impracticable to handle pure variety seed grain through the large interior terminal elevators. The distributing of mixed and impure variety seed, even though of superior cleanliness and vitality, very naturally has had the effect of producing a grain crop, considering it as a whole, of less value for milling or feeding as compared with the more uniform product that might be obtained from the better grades of seed grain that are pure as to variety. Negotiations are now in progress with a view to securing the co-operation of the farmers' and grain growers' co-operative organizations within each of the Prairie Provinces, so that all of the registered and extra No. 1 seed grain produced by farmers who make a specialty of seed growing will be preserved, assembled, cleaned and properly graded as to quality, in order that the Seed Purchasing Commission may have this supply for distribution in lieu of the inferior grades of seed grain.

Because of the varied climatic conditions, particularly in the Prairie Provinces, there are as a rule some considerable areas each year which because of drought, frost, hail or other causes are without seed supply and need the support and assistance of the Seed Purchasing Commission. It is believed to be advisable and more economical to maintain the nucleus of this organization to take care of such difficult seed situations when they arise than to disband the small staff of men who are experienced in this particular work.

The Maritime District

The Seed Branch maintains an office at Truro, N.S., with a district inspector and clerk-stenographer. Seasonal inspectors for sub-districts are stationed at points convenient to the work in the three provinces.

SEED PRODUCTION AND SUPPLY

While production is in general a matter for provincial initiative, our officers have been co-operating with Provincial Departments of Agriculture in the encouragement of seed production through field crop competitions, local seed fairs and provincial seed exhibitions. These services are conducted by the provinces with financial support from Dominion subventions through the Seed Branch amounting to approximately half of their total cost. This branch now gives special encouragement to the organization of seed centres under this arrangement by offering a grant of $200 for each combined seed crop and cleaned seed competition, and the services of our inspectors are available for making the bin inspection. They also act as judges at seed fairs and exhibitions, and the district inspector assists in training the provincial judges for standing crops.

The Maritime Provinces are taking advantage of these combined competitions, particularly in seed oats and potatoes. During 1921, three were held in Prince Edward Island, three in Nova Scotia, and two in New Brunswick. A seed cleaning plant has also been established at Kensington, P.E.I., and special attention is being given to the production of seed oats, potatoes, clover and timothy seed in that province.

Seed supply does not usually present many difficulties in the Maritime district, but the 1921 seed crop was short in oats and almost a failure in clover seed. Late spring frosts affected the clover, and all crops suffered from a prolonged drought in mid-summer. Owing to feed shortage many Prince Edward Island farmers, who ordinarily export large quantities of Registered or Extra No. 1 Banner seed oats, were forced to feed their 1921 oats surplus during the winter, and steps had to be taken to bring large quantities of seed oats from the prairie provinces. Local dealers were unable to cope with the situation, and arrangements were made whereby our officers co-operated with them in placing orders with our Seed Purchasing Commission, Regina. By April 30, 60,000 bushels of No. 1 seed oats were ordered from this source, and local dealers had purchased from private grain companies large quantities of Recleaned 2 C. W. commercial oats.

INSPECTION

Seed, feed and fertilizer trade inspection is heaviest during the winter and spring months. During the past year 824 visits were made to points requiring inspection; 1,062 visits were made to seed dealers, 1,259 to feed dealers and manufacturers, and the fertilizer trade was carefully checked at points of importation and distribution. Out of fourteen alleged violations of the Seed Control Act, six of the more serious offences were recommended for prosecution. There were five alleged violations of the Feeding Stuffs Act, upon some of which court action will likely be taken. An increasing number of farmers and gardeners are buying the constituents and mixing their own fertilizers.

EDUCATIONAL WORK

Considerable educational work was necessary in connection with the new Feeding Stuffs Act. Seed judging classes were also conducted at local seed fairs and at provincial short courses in agriculture. Addresses were given and literature distributed at provincial farmers' and dairymen's conventions.

Quebec District

The work in Quebec is under the direction of a district inspector with headquarters and staff at Quebec city, and six permanent and seasonal inspectors stationed at suitable points in sub-districts.

SEED PRODUCTION AND SUPPLY

Field crop competitions have become very popular in the Quebec district, and excellent progress has been made in the establishment of the combined seed crop and cleaned seed competitions. Twenty-three of the latter type were held this year, with 1,013 competitors in oats, clover seed and potatoes. The district inspector assisted in training the provincial judges for the standing crops and his staff made the bin inspections of the cleaned seed. These competitions and seed fairs have resulted in a marked improvement of local seed stocks, and farmers are giving more attention in cleaning and grading.

Within the last few years this district has become practically self-sustaining in the production of general field seed supplies, but the 1921 drought played havoc with the grain crops. In the emergency, orders for seed oats were placed with our Seed Purchasing Commission totalling 136,000 bushels by the end of April, 1922. The quality of the clover seed crop was generally good, and local oats, while light in weight, showed good vitality. Imported oats from the grain trade are usually tagged to indicate the noxious weed seeds present instead of being cleaned to seed grade standards. In the past many complaints have been received from farmers as to the quality of tagged seed, but the competition of No. 1 seed oats from the Seed Purchasing Commission is gradually forcing seed merchants to deal only in good seed oats.

INSPECTION

Feed and fertilizer inspection requires special attention in Quebec. Feeding stuffs offered there too frequently contain mill sweepings, oat hulls and dirt, and the province appears to have been made a dumping ground for low-grade fertilizers. However, a number of prosecutions now pending may tend to improve the situation. Over a hundred samples of feeding stuffs were taken for analysis and practically all kinds of fertilizers offered for sale have been checked for comparison with registration samples. Visits were made to 904 points requiring inspection, 2,199 to seed dealers, 1,196 to feed dealers, and 109 to fertilizer dealers and manufacturers.

EDUCATIONAL WORK

Our inspectional and educational work is causing the farmers to study the analysis of seed, feed and fertilizer before purchasing. Too much attention had been given to the low-priced products which in actual value would figure from analysis to be more expensive than many high-priced products. Farmers had been purchasing material sold as fertilizer which was practically worthless.

Eastern Ontario

A district inspector, with headquarters at Ottawa, and four permanent and seasonal inspectors cover the work in eastern and northern Ontario, Wright and Pontiac counties, Quebec.

SEED PRODUCTION AND SUPPLY

The clay belt of northern Ontario is becoming an important region for the production of red clover and alsike seed. The 1920 crop at Oxdrift and the Slate River valley amounted to over 6,000 bushels, but last year was unfavourable and the yield was only about one-third of normal. The industry is well organized through the Kenora Seed Growers' Association, and marketing is done on the carlot basis. The growing of garden peas and other seed crops for the canning industry has assumed large proportions in eastern Ontario.

There was an unusually early harvest in 1921 and the grain crops were the lightest ever experienced. However, large quantities of good oats had been carried over by the farmers and helped to prevent a shortage for this year. Dealers brought in No. 2 C.W. commercial oats from Western Canada and recleaned them for seed, but a better quality of seed oats of the No. 1 seed grade was obtained from our Seed Purchasing Commission. Farmers in this district obtain many of their seed supplies, especially clover seeds, direct from other farmers rather than through the seed trade. There is very little demand for the No. 3 grades, and most farmers require No. 1.

INSPECTION

Points requiring inspection received 1,725 visits; 1,553 were made to seed dealers, 1,808 to feed dealers and manufacturers, and the fertilizer trade was given necessary attention. Three prosecutions were successfully conducted under the Seed Control Act, and others are pending under the Feeding Stuffs Act.

EDUCATIONAL WORK

The district inspector conducted short courses in seed judging, gave addresses before farmers' clubs and seed meetings, judged at exhibitions and seed fairs, and with his staff did the judging in the bins under the combined competitions.

Western Ontario

The field staff in western Ontario includes a district inspector and four or five permanent and seasonal inspectors. The opening of a seed and feed laboratory at Toronto has greatly facilitated the work of inspection in this district.

SEED PRODUCTION AND SUPPLY

This is one of the best seed producing districts in Canada, but the 1921 seed crops were generally light in yield and only fair in quality. Dealers who usually ship a number of cars of the clover seeds reported business last year in a few hundred bushels. The situation was further aggravated by a lack of export demand and low prices. The fibre flax seed crop for export to Ireland amounted to only 7,200 bushels of No. 1 seed grade.

Seed corn yields were very satisfactory and there was a plentiful supply of the No. 1 grade to meet Canadian demands. A shortage in seed oats was prevented by the Seed Purchasing Commission, which had Ontario orders for 98,000 bushels to the end of April. Farmers had also carried over supplies from the 1920 crop. There was a scarcity of No. 1 red clover seed owing to the poor season and an increased demand for the No. 2. The administration of the Seed Importation Regulations for western Ontario was taken over by the Toronto inspection office early in February, and 4,107,735 pounds were released from customs for the last two months of the fiscal year.

INSPECTION

Six prosecutions were conducted under the Seed Control Act for the 1921 trade season. Over 1,200 visits were made to seed dealers, 800 to feed dealers, 20 to fertilizer manufacturers, and 670 to points requiring inspection. Feed manufacturers and dealers were doing their best to comply with the new Feeding Stuffs Act, and only a few violations were reported. The fertilizer trade was also in a good condition.

EDUCATIONAL WORK

The district inspector supervised the seed department of the Guelph Winter Fair and judged at the Ottawa Winter Fair and the Chatham Corn Show. He also took an active part in the meetings of the Western Ontario Seed Growers' Association.

Manitoba and Saskatchewan

This district is served by an inspection office and seed and feed laboratory at Winnipeg. A district inspector and six seasonal inspectors control the trade with a seed inspector at each of the Canadian Government elevators at Moosejaw and Saskatoon.

SEED PRODUCTION AND SUPPLY

The grain crops last year were a good average, but the quality was injured by hot, dry weather during the filling period and a very wet harvest. There was also an excess of saw-fly damage, particularly in the dry areas of southwestern Manitoba and southern Saskatchewan. Rust did considerable injury in the northern districts. Brome and western rye grass seeds are produced in quantity and attention is given to sweet clover and golden millet.

Seed grain available through the Government elevators was not up to the quality of 1920 which had been carried over by the Seed Purchasing Commission, and weighed out fifty pounds to the bushel in many cases. Large quantities of Durum wheat were purchased for southern Saskatchewan and rye was in demand for the rust districts. Importations through customs under our seed regulations totalled 2,213,200 pounds for all kinds of seed.

INSPECTION

The inspection of seed grain at the Canadian Government interior terminal elevators is made available to the general trade but has been used principally by the Seed Purchasing Commission. Grain which can be cleaned to seed with a reasonable dockage is separately binned according to the grade, and certificates issued with warehouse receipt for the shippers. When ordered out it is cleaned to seed grain and each shipment is covered by an ex-elevator seed certificate attached to the bill of lading. For the season ending April, 1922, approximately 18,000 bushels of seed wheat, 100,000 bushels of seed oats and 1,000 bushels of seed barley were inspected out of the Moose Jaw and Saskatchewan elevators.

Points requiring inspection received 537 visits; 876 were made to seed dealers, 896 to feed dealers and 12 to the fertilizer trade, which is practically nil in this district. Fifteen prosecutions under the Seed Control Act were conducted on the 1921 seed season, and a few court actions are assured on the 1922 feed season. Special attention was given to the quality of recleaned grain screenings obtained from the elevators. The quality of mill feeds is reported as materially improved as a result of the new Act .

EDUCATIONAL WORK

Inspectors were enabled to cover new territory last season and were generally welcomed as a source of information to dealers and farmers. The district inspector is a member of the Saskatchewan Seed Board and co-operates with provincial officers in promoting seed production. He judged at the Saskatoon Seed Fair and gave an address on the combined competitions before a conference of agronomists and district representatives at the Manitoba Agricultural College.

Alberta and British Columbia

The organization in this district includes an inspection office and a seed and feed laboratory at Calgary. The trade is controlled by a district inspector, five seasonal inspectors, and a permanent inspector who is also a seed production specialist in British Columbia.

SEED PRODUCTION AND SUPPLY

Field root and garden vegetable seed production was developed in British Columbia during the war years of threatened seed shortage, and reached in quantity approximately 150,000 pounds for the year 1919. While production has fallen off since, owing to heavy seed crops in Europe and changed economic conditions there, the Saanich peninsula, the Gulf islands and the Lower Fraser valley have soil and climatic conditions which are bound to make them important seed producing centres in North America. Sugar beet and onion seed were the principal crops last year. A grower at Salt Spring had 55 acres of flower and vegetable seeds. About 60 acres were devoted to sweet pea seed, principally around Victoria, at Royal Oak and Duncan, and mostly under contract with British seedsmen at profitable prices to the growers.

Very satisfactory progress is being made in alfalfa seed growing at Brooks, Alta., and in the Lytton and Ashcroft districts, B.C. Approximately 8,000 pounds of the Brooks Grimm alfalfa graded No. 1 and received registration by the Canadian Seed Growers' Association; 25,000 pounds did not reach this standard because of excessive weed seeds, principally Russian thistle.

The British Columbia seed crop in the districts mentioned comprised over 27,000 pounds and was mostly the common alfalfa. This seed crop is proving successful sixty miles north of Edmonton, where a grower harvested 6,000 pounds from twelve acres. The importation of over 30,000 pounds of Grimm alfalfa from Idaho will result in more extensive operations for 1922.

Timothy seed has proven to be a very suitable crop for southern Alberta, the Peace River district and the Bulkley valley, B. C. Last year's crop in southern Alberta suffered seriously from the dry weather, but conditions promise to be generally favourable in the other districts. A Peace River grower had 800 bushels of excellent seed and the acreage there is being doubled this year.

Large quantities of seed grain were required for southern Alberta, which had not yielded the return of seed sown in many districts. The grain on spring ploughing and on stubble was practically a failure. Inspections of wheat at the Calgary elevator indicated that the quality and purity of variety were generally inferior as compared with former years. The oat crop was a heavy one in northern Alberta, but frost caused serious injury. All demands were, however, met from the 1920 surplus carried over by the Seed Purchasing Commission at the Calgary elevator. Ex-elevator inspections for the season ending April totalled 27,764 bushels of seed wheat, 478,290 bushels of seed oats and 1,040 bushels of seed barley. The commission distributed in Western Canada for the same period 158,600 bushels of oats from the Calgary, Moose Jaw and Saskatoon elevators, but most of their supply went to Eastern Canada. Importations through customs totalled 583,685 pounds of seed.

INSPECTION

Over 500 visits were made to points requiring inspection, 324 to seed dealers, 475 to feed dealers, and 90 to fertilizer dealers and manufacturers. Three prosecutions were conducted under the Seed Control Act during 1921. A careful inspection of all feed manufacturers revealed a number of departures from the requirements of the Feeding Stuffs Act, particularly in regard to the details of labelling. Fertilizer inspection was handicapped somewhat by pressure of work at the Vancouver laboratory of the Department of Health.

EDUCATIONAL WORK

The district inspector took an active part in the proceedings of the Alberta Seed Board, which has charge of seed production work in the province. He judged at the Provincial Seed Exhibition and at local seed fairs in Alberta and British

Columbia. An exhibit was made at the New Westminister Fair, displaying the various steps in field root and vegetable seed production. Addresses were given before the Dairymen's Convention at Victoria on feeding stuffs regulations, and before the Vernon Irrigation Convention on alfalfa seed production.

The Copenhagen Congress

In response to a communication received from the British Colonial Secretary the Seed Commissioner was duly appointed the delegate from Canada to attend, with the British delegation, the International Congress on Seed Control held at Copenhagen during the week ending June 10, 1921. He also represented the Association of Official Seed Analysts of North America, of which he was president for the year.

These international organizations exist for the purpose of unifying systems of seed control and providing an acceptable basis for adjusting disputes that may arise in connection with international shipments of grass, clover and other seeds. Canadian seed producers and merchants were vitally interested in the proceedings of the European congress at Copenhagen, inasmuch as probably eighty per cent or more of the alsike seed supplies of Europe are as a rule obtained from Canada. The need for maintaining a high standard of efficiency in seed control work is becoming better appreciated by our own farmers. The need for maintaining a staff of competent analysts in direct charge of our seed laboratories will appear obvious when it is understood that each seed control station may or may not be deemed competent to adjust disputes that may arise from international shipments of seed supplies, depending on whether or not the staff in charge of the station is judged competent by the international associations.

A great deal of valuable information grew out of the conference at Copenhagen, and this has formed a subject for report of much interest, particularly to the technical officers of the department and of the American association.

Acting under instructions the Seed Commissioner visited a large number of important seed producing centres, feed control laboratories and fertilizer manufacturing establishments in Denmark, Sweden, Germany, Holland, France, England and Scotland. A new and comprehensive fertilizer bill has been prepared which contains several important features that have grown out of experience in fertilizer control particularly in Scotland.

Six lots of special stock seed of white clover and orchard grass varieties were selected for importation and production in Canada with a view to exporting to those countries where these seeds are in popular demand.

In addition to his regular departmental work the Commissioner, at the request of the Minister, represented the Canadian Department of Agriculture at the Intercolonial Conference of the British Empire Producers' Organization, held in London on July 14-15, 1921.

ENTOMOLOGICAL BRANCH

The work of this branch has been continued along somewhat similar lines as that of recent years. Important savings to crops have resulted from advice given to farmers, fruit growers, etc., by our officers. The established field laboratories in the various provinces are being more and more recognized as reliable sources of information regarding the control of injurious insects. In addition to the Administrative Division, the work of the branch is conducted chiefly by the Division of Forest Insects, the Division of Field Crop and Garden Insects, the Division of Foreign Pests Suppression and the Division of Systematic Entomology.

Under the direction of the Dominion Entomologist the Regulations under the Destructive Insect and Pest Act have been administered in so far as they

refer to insect pests. The following amendments to the regulations referring to insects were passed during the fiscal year April 1, 1921, to March 31, 1922:—

By Order in Council passed on May 12, 1921 the amendment passed on May 24, 1920, which dealt with the importation of certain plant products from the areas in the United States infested with the European corn borer was rescinded. The new amendment included the territory recently found infested by the pest and permitted the entry of certain products without certificates of inspection between January 1 and June 1.

On May 18, 1921, the Ministerial Order passed on November 19, 1920, quarantining certain areas in the province of Ontario on account of the European corn borer, was rescinded and replaced by an Order in Council passed on the same date. The Order in Council extended the quarantine to include certain sections bordering the quarantined area in which canning factories were located. This was done so as to enable farmers living in the quarantined area to dispose of their crop at the canning plants.

On August 26, 1921, a Ministerial Order was passed which extended the area quarantined for the European corn borer in southern Ontario, to include the townships found infested by the pest from August 1 to the above date.

On September 7, 1921, a Ministerial Order was passed which extended the area quarantined for the European corn borer in southern Ontario, to include the additional townships found infested by the pest from August 26, to September 7.

On October 3, 1921, a Ministerial Order was passed which extended the area quarantined for the European corn borer in southern Ontario, to include the additional townships found infested by the pest from September 7 until the end of the scouting season.

On November 15, 1921, a Ministerial Order was passed which extended the area quarantined for the apple sucker in the province of Nova Scotia, to include the county of Halifax, the pest having been found in this county during the preceding summer by the inspectors.

On February 7, 1922, an Order in Council was passed which added the following insect pests to the list of pests to which the regulations shall apply: Japanese beetle, Mexican bean beetle, sweet potato weevil, satin moth, currant gall mite, and the hazel blister mites.

On February 10, 1922, the Order in Council passed on May 18, 1921, and the Ministerial Orders passed on August 26, 1921, September 7, 1921, and October 3, 1921, quarantining certain areas in the province of Ontario on account of the European corn borer were rescinded. These were replaced by an Order in Council which included all the amendments to the previous Order and brought the quarantine up to date.

By Order in Council passed on March 21, 1922 (P.C. 591), the amendment dealing with the importation of certain plant products on account of the European corn borer, passed on May 12, 1921, was rescinded. The new amendment restricted the importation of certain plant products from all the areas found infested by the European corn borer in the United States.

By Order in Council passed on March 21, 1922 (P.C. 593), the amendment dealing with the importation of alfalfa hay, on account of the alfalfa weevil, passed on April 14, 1920, was rescinded. The new amendment places an embargo on the importation of alfalfa hay from all areas in the United States infested with the alfalfa weevil. It also requires that all shipments of alfalfa hay consigned to the Prairie Provinces and British Columbia be accompanied by a certificate stating the county and state in which it was grown.

Division of Forest Insects

The work of the officers of this division has included investigations of bark-beetle outbreaks in pine and Douglas fir in British Columbia; eastern spruce bark-beetle outbreaks in the Gaspe region of Quebec; spruce budworm and beetle injury to balsam and spruce in Eastern Canada; shade tree insect outbreaks, and forest sample plot studies.

The control of bark-beetle outbreaks in yellow pine has been carried out successfully in the Nicola district of British Columbia by the Dominion and Provincial Forest Branches under the supervision of our officers. It is evident that a very large quantity of timber threatened with destruction by the outbreak has been saved by this control operation. It is hoped that this work will be extended this season to cover additional infested territory.

An outbreak by the eastern spruce bark-beetle was investigated by our officers and control measures were recommended. A considerable amount of timber has already been killed by the beetles, but modified logging operations will prevent further spread of the disease.

Our investigations of the spruce budworm injury to balsam and spruce in Eastern Canada have been continued. The active budworm outbreak has disappeared throughout the greater part of Quebec and New Brunswick, but the weakened balsam is still dying in many places through attack by bark-boring beetles and fungi. An active budworm outbreak is in progress in the Temiskaming district of Quebec extending westward as far as lake Temagami in Ontario. The loss caused to our forests by the spruce budworm and the beetles which followed it has been estimated by our officers at more than fifty per cent of the total balsam stand in Eastern Canada. Recommendations for alleviating the present situation and preventing a similar outbreak in the future are being perfected. They include utilization of dead, dying and mature balsam, proper disposal of beetle-infested trees, slash disposal, and proper system of forest management suitable to development of budworm immune types of forest. Our officers, with the co-operation of the Air Board, carried out a further aerial survey of the budworm injured areas of western Quebec, and obtained valuable information.

The forest sample plot studies were continued according to the previous plans; several additional plots being established in New Brunswick.

Investigations of various shade tree insects, and the biology of various forest insects have been conducted chiefly at the forest insect laboratory near Aylmer, Que.

Division of Foreign Pests Suppression

The inspection of imported nursery stock and the conducting of such other work necessary under the regulations of the Destructive Insect and Pest Act, has occupied the time of the officers of this division.

During the year the brown tail moth suppression work was continued in the provinces of New Brunswick and Nova Scotia. No nests were found during the scouting season in the former province. In Nova Scotia between December 1, 1921, and March 25, 1922, 977 nests were collected. Most of these were taken in the following localities: Bridgetown, Torbrook, Round Hill, and Wolfville. This represents an increase over the number of nests collected the preceding year.

The scouting for the European corn borer carried on during the summer of 1921 in the province of Ontario, showed that this insect had spread over a large amount of territory. One hundred and six townships covering 8,214 square miles are now quarantined for this pest. On July 21, the United States Department of Agriculture placed an embargo on the province of Ontario on account of the European corn borer and required that certain products be inspected before entry into the United States. From the above date to December 31, 430 certificates were issued for export shipments. The value of the products exported approximated twenty-five thousand dollars.

The quarantine for the apple sucker in the province of Nova Scotia was maintained during the year. The total area now infested covers 2,249 square miles. Five hundred and seventeen certificates and permits for 42,934 plants were issued under this quarantine during the year.

The inspection and fumigation of nursery stock imported into Canada in accordance with the Regulations under the Destructive Insect and Pest Act was continued. For the year ending March 31, 1921, 1,218,702 plants from Europe, Japan and the New England states were inspected; and 19 carloads, 768 cases, 647 bales and 780 parcels of nursery stock from the United States and Japan were fumigated at the Dominion fumigation stations. The value of the plants, trees, shrubs, vines and florists' stock, but not including cut flowers, imported into Canada for the fiscal year mentioned above, was $841,691.

A report to the effect that the gipsy moth was present in the Maritime provinces was carefully investigated and the suspected areas thoroughly scouted, but no sign of the pest was found.

Division of Field Crop and Garden Insects

As mentioned in the report for the year ending March 31, 1921, the European corn borer was discovered in Ontario by the officers of the branch in August, 1920. Since then further intensive scouting work has revealed the fact that this dreaded enemy of corn has become firmly established particularly in Middlesex and Elgin counties. During 1921 important progress was made in studying the life-history of this insect under Ontario conditions and much data secured of value in devising control measures. Information regarding this pest and its destructive habits was given wide publicity. In districts to the south of St. Thomas considerable injury took place not only to sweet corn, but also to dent corn and to flint corn.

In the Prairie Provinces important outbreaks of grasshoppers and cutworms were investigated and much crop saved resulting from information given by our entomologists.

Further biological studies of such important insects as the western wheat-stem sawfly, the cabbage and onion maggots, the corn-ear worm, the Hessian fly and other grain-infesting insects, have been made. The infestation of the western wheat-stem sawfly in Manitoba alone, has been estimated to extend over an area of 8,000 square miles, the actual crop affected in 1921 exceeding one million acres. Important losses have also taken place in Saskatchewan. In the province of Alberta, the pale western cutworm has developed into a pest of first importance. Much experimental control work has been accomplished and progress made. A new method of poisoning the adult moths before they lay their eggs has been devised. In 1921 one of the most important outbreaks of the corn-ear worm, of which we have record, occurred throughout Canada. In some sections of Ontario late sweet corn was injured in some fields to the extent of 25 per cent of the crop.

Division of Systematic Entomology

The officer in charge of this division has continued important systematic studies of insects in the National Collection. During recent years this collection of insects has been added to very considerably from collections made in various parts of Canada by our own officers and outside entomologists, in addition to which collections have been received by request or purchase. Among the more important collections added to the National Collection during the year was the collection of aculeata hymenoptera belonging to the late F. W. L. Sladen, Dominion Apiarist.

The National Collection of Insects is the most important collection in Canada and is becoming recognized as one of the major collections in North America. It is

attracting the attention of entomologists from many provinces and states and its value to the economic worker cannot be too highly emphasized. It is essential that officers know the names of the insects they find causing damage to orchard, field or forest crop, and this is only possible by systematic studies of the species themselves and a search in the literature of the systematist.

During the year, many specimens of insects have been determined for entomologists, other than those in the employ of the department, as well as for teachers and others.

Important progress has been made in systematic studies of such important insects as the Tabanidæ (horse flies); Micro-lepidoptera (leaf-rollers, etc.), leaf-eating coleoptera, etc.

INSECTICIDE INVESTIGATIONS

During the year our insecticide entomologists have made valuable progress in the development of more efficient and cheaper insecticides. The value of copper arsenic dusts for orchards, devised by our officers, is now becoming more widely recognized. Further progress was made in 1921. The reduced cost of dust mixtures will result in important savings to fruit growers and others. In Western Canada the value of white arsenic and arsenate of lime, as insecticides to take the place of more expensive and widely adopted arsenicals, was demonstrated.

NATURAL CONTROL INVESTIGATIONS

In the Maritime provinces, particularly in Nova Scotia, important studies of diseases affecting such pests as the apple sucker, recently introduced into Canada from Europe, and the green apple bug, have been made by one of our entomologists. Other natural control investigations undertaken refer particularly to agencies responsible for controlling the forest tent caterpillar and the spruce budworm. In British Columbia a predacious mite introduced a few years ago to control the oyster shell scale, an important pest which has established itself near certain fruit sections in the Okanagan, is increasing in abundance and it is expected will render valuable service.

STORED PRODUCT INSECT INVESTIGATIONS

Very few complaints of insects infesting stored products were received during the year. Larvæ of the carpet beetle were in one instance reported to be damaging flour bags. Correspondence showed that the raw material obtained by the manufacturers of bags is frequently infested by these larvæ and that the bag factories may be a source of infestation to flour and other mills. Preliminary life-history studies were made in connection with an undetermined tarsonemid mite which is very common in some of the grain elevators.

MOSQUITO INVESTIGATIONS

The officer in charge of the mosquito investigations continued this work in 1921 in the neighbourhood of Mission, B.C. Extensive surveys were made of flooded areas in the Fraser River valley and much information gained not only regarding the control of these insects over such a wide area, but also on their life-history and habits.

INDIAN ORCHARD WORK

The supervisor of Indian orchards in British Columbia, an officer of the Department of Indian Affairs, continued to act as supervisor in 1921 under the direction of the Dominion Entomologist. The reports received from this officer indicate that excellent progress was made by the Indians of the province in horticulture and agriculture.

Advisory Board on Wild Life

The Dominion Entomologist, as the representative of the Department on the Advisory Board on Wild Life Protection, has attended the meetings of the board during the year. This board is an interdepartmental one in charge of matters relating to the protection of fur-bearing and big game animals, wild fowl and other animal life.

Field Laboratories

Annapolis Royal, N.S.—The officers attached to this laboratory have been continuing insect investigations and many experiments with dust and spray mixtures have been developed, particularly in the Annapolis valley. Experiments with new insecticides were also carried out in New Brunswick. One of the officers of this laboratory visited Western Canada to assist in the development of poisoned baits for the destruction of grasshoppers. Some further experiments were also conducted in Manitoba in connection with gopher control.

Fredericton, N.B.—The natural control studies of such well known pests as the spruce budworm, tent caterpillar, fall webworm, green apple bug, apple sucker, etc., have been conducted from this laboratory. The officer in charge of this laboratory has also made a survey of the province for information regarding the damage caused by the spruce budworm. In the province of New Brunswick a severe outbreak of the tent caterpillar occurred and from information secured by our officers this outbreak will continue in 1922. Other insects which were present in destructive numbers were the Colorado potato beetle, the larch case-bearer, the larch sawfly, etc.

Hemmingford, P.Q.—In the province of Quebec, the officer in charge of this laboratory has conducted further experiments in orchard spraying and dusting, and considerable progress has been made in this work. It is of interest to record that some of the best fruit grown in the district was from orchards which had been used for demonstration work. Among the insects which have been specially studied by the officer in charge of this laboratory are the following: the apple maggot, tent caterpillar, plum curculio, apple curculio, cutworms, etc.

Vineland Station, Ont.—Fruit insects were specially studied from this laboratory during the year. Investigations were continued on the pear psylla, potato leaf hopper, strawberry weevil, blackberry leaf miner, etc., and much valuable data was secured. Experiments with dust and liquid spray mixtures were conducted in apple, cherry, plum and peach orchards. Other work begun at this laboratory referred to studies of the grape leaf hopper, rose chafer, green apple bug, peach tree borer, pear aphis and nematodes.

Strathroy, Ont.—The studies of the Hessian fly outbreak were conducted at this laboratory as well as studies relating to the biology and control of the potato leaf hopper, potato beetle and European corn borer. Some further work was effected on the white grub.

Port Stanley, Ont.—A laboratory was established at this point during the year for the purpose of studying especially the outbreak of the European corn borer in western Ontario. This laboratory also serves as a headquarters for the men engaged in the quarantine work necessary on account of the establishment of this insect in Canada.

Treesbank, Man.—The officer in charge of this laboratory has again assisted considerably in the outbreak of grasshoppers which has been present in this province. Many meetings of farmers were attended and instructions given as to the proper method of

control of these destructive insects. A study of the western wheat-stem sawfly was conducted and much information of value obtained. Other insects which required attention in the province were: the Colorado beetle, cucumber flea beetle, beet webworm, red turnip beetle, wireworms, etc.

Saskatoon, Sask.—This laboratory was under the charge of a temporary officer during the year and investigations on the biology of black flies, horse flies, etc., were conducted. Assistance was also rendered from this laboratory in connection with outbreaks of the beet webworm, grasshoppers, cutworms, etc.

Lethbridge, Alta.—The outbreak of grasshoppers in the province of Alberta required constant attention from the entomologist in charge of this laboratory. The pale western cutworm, a very destructive species, caused considerable damage, and further studies of this pest were made. Important control measures were developed. Other insects which caused damage in the province were the beet webworm, wheat-stem sawfly, thrips on alfalfa, wireworms, flea beetles, etc.

Vernon, Agassiz, Victoria, B.C.—The chief entomological laboratory in British Columbia is located at Vernon, and from this laboratory insects attacking orchard trees in the Okanagan were studied, particularly those affecting the apple. Further co-operative work was also carried on in connection with the control of root maggots, which are an important enemy of the market gardener. At this laboratory an important representative collection of the destructive insects of the province is being brought together.

At the Agassiz laboratory investigations relating particularly to small fruit insects were continued. Further observations were made by the officer in charge of this laboratory on the satin moth, a recent importation into British Columbia which has spread rather considerably during the year and has now been found in Vancouver and on Vancouver island near Duncan's.

At the Victoria laboratory the control of the strawberry weevil has been further developed by the adoption of weevil-proof barriers. Biological studies have also been made on the leaf hopper which attacks the loganberry, the raspberry cane girdler, the western ten-lined june beetle, etc.

Publications

The following publications have been issued from the Entomological Branch during the year:—

CROP PROTECTION LEAFLETS

No. 15.—The Pale Western Cutworm. By H. L. Seamans and E. H. Strickland.

No. 16.—The Control of the European Corn Borer. By H. G. Crawford and J. G. Spencer.

CIRCULARS

No. 9.—Common Garden Insects and their Control. By Arthur Gibson. (Reprinted.)

No. 15.—The Control of Bark-beetle Outbreaks in British Columbia. By Ralph Hopping.

In addition to the above departmental publications the officers of the branch have contributed articles in the *Agricultural Gazette of Canada* as well as in entomological journals such as *The Canadian Entomologist*, transactions of various societies, etc. Many articles were also prepared by our entomologists for the agricultural press.

FRUIT BRANCH

THE FRUIT SEASON

All bushes and trees came through the unusually mild winter in excellent condition, and the favourable warm weather of an exceptionally early spring, together with a most profuse bloom throughout all the fruit districts of the Dominion, tended to forecast a prosperous season. The favourable winter conditions, however, were followed in the late spring and summer by a most severe drought which caused the fruit season of 1921 to be, from the cultural standpoint at least, one of the most unfavourable in a number of years.

The commercial apple crop of the Dominion was approximately 15 per cent larger than that of 1920, or 3,771,100 barrels as compared with 3,382,540 barrels. In British Columbia growing conditions were particularly satisfactory throughout the season, with the result that a crop at least 100 per cent in excess of 1920, or 3,027,000 boxes as compared with 1,512,620 boxes, was produced. In Ontario the crop was but 60 per cent of that of 1920, or 960,000 barrels as compared with 1,600,000 barrels. This decrease was due in part to a further deterioration of the trees as a result of the 1917-18 freezing, but largely to a series of severe frosts at blossoming time followed by continued dry weather. In Quebec the crop was reduced to about 40 per cent of 1920, or 35,200 barrels as compared with 88,000 barrels, due principally to the extreme drought prevailing throughout the season and to severe windstorms just before harvest time. The apple crop in New Brunswick was 10 per cent in excess of that of 1920, or 33,000 barrels compared with 30,000 barrels. Nova Scotia produced an apple crop of 1,837,140 barrels, which was one of the largest in its history and exceeded the 1920 crop by 677,140 barrels. This crop was the third successive large crop for this province.

In spite of the generally unsettled conditions in Great Britain and the consequent reduced buying power a greater quantity of apples was exported than for a number of years. There were exported from Nova Scotia alone 1,111,827 barrels and 6,494 boxes, at prices which gave the grower a very satisfactory return.

The apple market in Canada was unusual in that equal grades of apples in barrels gave larger returns to the grower than did those packed in boxes. This condition was due largely to the fact that British Columbia, the largest box packing province, had a bumper crop which it was unable to place on its usual market, the Prairie Provinces. This necessitated many long haul shipments to points in Eastern Canada and the United States under very heavy transportation charges which resulted in lower prices to the grower. A large portion of the apples produced in Ontario, Quebec and New Brunswick found a ready profitable market at home.

The small fruit crop in British Columbia was approximately 100 per cent in excess of the crop of 1920, but in view of the extreme heat, under which the fruit matured very rapidly, and the reduced demand, the returns to the grower were not equal to those of the previous few years. In Ontario the small fruit crop was not up to average, due largely to the dry hot weather, and to a blight which attacked the leaves. Prices in general were lower than for some seasons.

In British Columbia the crop of peaches, plums and prunes, was equal to that of 1919, while pears yielded only about 75 per cent of the 1920 crop due largely to the severe attacks of fire blight. The tender fruit crop in Ontario was light. The pear crop was equal to that of 1920, but peaches both of the early and late varieties did not yield more than 40 per cent of the previous year. The plum crop was about 50 per cent of average, while that of cherries was but 20 per cent of the 1920 crop.

CROP REPORTS

The Fruit and Vegetable Crop Report was issued each month from June to October, inclusive, as usual. Each report gave, in addition to a summary of the

crop conditions and prospects prevailing for the period in each province, a detailed statement from each separate district in each province. It also included a statement on the condition of the crops in the United States and Great Britain. The opportunity was taken of bringing to the attention of the fruit and vegetable growers of the Dominion various outstanding points of interest to them, such as new regulations, the Imperial Fruit Show regulations, and matters affecting the transportation of their products. A special potato Crop Report was issued in November. It is evident that the Fruit and Vegetable Crop Reports are satisfying a demand for information of the nature contained therein, and the mailing list now contains approximately 10,000 names each of which represents a definite request.

TELEGRAPHIC MARKET REPORTS

The publication of the Telegraphic Market Report on the conditions and prices obtaining in the principal Canadian markets was commenced earlier than usual due to the fact that the season in general was almost two weeks earlier than normal. The first report was published on August 22, simultaneously at Vancouver, B.C., Winnipeg, Man., Ottawa, Ont., and Middleton, N.S., and twice weekly thereafter until December 29. From that date until March 31 the reports were published once per week at Ottawa only. The Telegraphic Market Reports published at Vancouver were distributed to 500 applicants in British Columbia, those printed at Winnipeg to 400 on the Prairie Provinces, those at Ottawa to 1,500 in Ontario and Quebec and those at Middleton to 600 throughout the Maritime Provinces.

Through the generous co-operation of the United States Bureau of Markets and Crop Estimates reports were also published of market conditions and prices obtaining in United States markets which were of special interest to Canadian growers and shippers. This service is gratefully acknowledged.

As usual the prices prevailing on the various European markets to which Canadian shipments are made were cabled immediately following each sale, by the Canadian Fruit Trade Commissioner. During the past season the prices received in English and foreign exchange were converted in this office at the prevailing rate of exchange to dollars and cents, and published as such. The mailing list for this report has grown by individual requests from 2,700 in 1920 to 3,000 during the past season.

TRANSPORTATION

To develop a proper system of distribution for Canadian fruits and vegetables it is necessary to cultivate co-operation between shippers and carriers and between the individual transportation companies. That is to say, traffic arrangements between companies, whereby the marketing of these commodities is expedited, becomes necessary to a greater extent owing to their perishable nature than is applicable to any other class of traffic. This condition is gradually being brought about through the activities of our Transportation Division by analyzing the problems arising between the shipper and carrier, by co-operating in matters of investigation and by developing the best possible service on a satisfactory basis without discrimination.

Frequent conferences were held during the year with railway, express and steamship officials, resulting in satisfactory rate adjustments, improved loading and unloading conditions, more favourable routings, storage-in-transit privileges, establishment of commodity rates from new districts and extension of markets under special rates, erection of shelters at shipping points, construction of sidings, better terminal facilities, improved icing facilities and conditions, improvements in car construction and tariff amendments which were in the general interest of the fruit and vegetable industries.

Several complaints submitted to the Board of Railway Commissioners by shippers were investigated and satisfactory adjustments made without the necessity of a public hearing. Our traffic and operating matters were satisfactorily handled in co-operation with officials of the Board of Railway Commissioners.

Further experiments were made during the season in handling tender fruit shipments under refrigeration. This work, which was begun in 1920 from British Columbia points, was confined to Ontario in 1921. As a result the carriers are altering the interior construction of cars to conform with our recommendations.

Meetings were attended and addresses made by the transportation specialist at different points in British Columbia, the prairies and Ontario.

IMPERIAL FRUIT SHOW

The first commercial fruit exhibition held in the United Kingdom, was projected and financed by the *Daily Mail*, London, Eng., and was held at the Crystal Palace, London, from October 28 to November 5, 1921. Special classes were provided for exhibits from the various fruit sections in the United Kingdom; also from the overseas dominions. There was also one class open to all fruit growers and associations of growers in the British Empire.

Canada was well represented in both the Overseas and British Empire sections, and in the latter section, in addition to winning many valuable prizes was awarded the grand challenge cup valued at £100 for the highest aggregate of points.

Commercial and artistic displays were also made in the non-competitive sections by the Provincial Governments of Nova Scotia and Ontario, and by the Fruit Branch of the Dominion Department of Agriculture.

The exhibition from the standpoint of advertising the excellent quality of Canadian-grown apples, was well worth the time and expense of those who participated.

The Fruit Commissioner, at the request of the management, acted as secretary for Canada, receiving entries and fees.

Tentative arrangements have been made for holding another show at approximately the same time and place in 1922. The Fruit Commissioner has again been asked to accept the position of secretary for Canada, and it is hoped that Canadian growers and associations of growers will again take advantage of this excellent opportunity to advertise Canadian apples.

EXPORT MARKETS

Arrangements have been made with the Department of Trade and Commerce whereby Mr. J. Forsyth Smith, Canadian Fruit Trade Commissioner in the United Kingdom, will again visit Canada during the summer of 1922. A series of meetings will be arranged by the Fruit Branch in co-operation with the Provincial Departments of Agriculture and provincial fruit growers' associations in all fruit growing provinces, in order that fruit growers may have an opportunity of obtaining first-hand information with respect to export markets in the United Kingdom.

The Fruit Trade Commissioner before sailing for Canada, will visit Scandanavia for the purpose of investigating the possibilities of extending the markets for Canadian fruit. Arrangements have also been made with the Department of Trade and Commerce whereby the Fruit Trade Commissioner will investigate other foreign markets at the earliest possible opportunity.

DOMINION FRUIT CONFERENCE

At the request of the several fruit growers' associations of the various provinces and of organized industries allied with that of fruit growing in Canada, a fruit conference was held in Ottawa, February 22, 23 and 24. Similar conferences have been

held under the auspices of the Department of Agriculture at various periods since 1896 as the needs of the industry required.

Prior to the last conference official representation was practically confined to fruit growers, but in order that the industry should be fully represented, representation was extended to growers, shipping organizations, wholesale fruit dealers, barrel manufacturers, fruit box and fruit basket manufacturers, jam manufacturers, nurserymen and retail dealers, making an official representation of thirty-three. In addition to this there was an average attendance of not less than 150 who were sufficiently interested in the conference to pay their own expenses. These included representatives of the Provincial Government Departments, agricultural colleges, railway express and transportation companies and the fruit shippers' associations.

Various subjects of interest to the fruit industry, and those allied with it, were discussed, among which were fruit grading, standard fruit packages, fruit by-products, differentiation in grade names for fruit in boxes and barrels, grading for blueberries, standards for jams and jellies, fruit juice beverages and fruit and vegetable transportation.

The advisability of the formation of a horticultural council representative of the industry, and allied industries, in the broadest sense, was another of the most important subjects considered. It was the consensus of opinion that these industries could be greatly helped by the formation of such an organization. In order that the discussion might be facilitated, the Fruit Branch prepared a draft of a constitution and by-laws which, with a few amendments, were adopted, and subsequent to the conference, steps were immediately taken to place the organization on a firm footing. The enthusiasm manifested by all the interests represented, augurs well for the future of the organization.

The conference as a whole was pronounced by all to be the most successful ever held.

The amendments to the Act with respect to the sale of fruit which were adopted by resolution, are now in the course of preparation.

INSPECTION SERVICE

For inspection purposes the country is divided into five districts: (1) the Maritime Provinces, (2) Quebec and Eastern Ontario, (3) Western Ontario, (4) the Prairie Provinces and (5) British Columbia, with a district inspector in charge of each, these officers being in direct charge of the permanent and seasonal inspectors in their respective districts. The staff was practically the same as in the previous year except that in British Columbia, where the crop showed an increase of about 100 per cent over that of 1920, seven additional seasonal inspectors were appointed. It was thus possible to accede to the request of the berry growers on Vancouver Island and the lower mainland for a special inspection service which was necessary in view of the fact that the acreage, particularly strawberries, had more than doubled; in addition to work at the cold storage plants and shipping stations, the inspectors visited the growers in their berry patches and gave practical demonstrations in the proper methods of grading and packing for the various markets.

The inspection of basket, box and barrel factories was continued, with the result that the manufacturers in practically all cases put out packages in strict accordance with the legal standards.

An inspector was again stationed in the Lake St. John district, P.Q., during the blueberry shipping season and rendered excellent service to shippers and dealers.

In co-operation with the various Provincial Departments of Agriculture, meetings were arranged during the winter months when our inspectors were able to assist at packing demonstrations and by giving information with respect to packing, grading and marketing. The inspectors also assisted at various short courses in box packing,

and in many cases acted as judges at exhibitions. One officer of the Branch devotes all his time to giving instruction in barrel and box packing.

The inspectors in the district affected, co-operated with the Entomological Branch by being on the watch for violations of the European corn borer quarantine.

All violations of the Fruit Marks Act were carefully investigated by the chief inspector for the district in which the offender lived, and convictions were secured in forty-three cases, the greater number being for violations with respect to improper grading. Thirteen convictions were secured for over-facing fruit in open packages, and it is expected that the publicity given these convictions will have a marked effect on the packing next season. For the first time since the passing of the Act in 1901, a conviction was secured for obstructing an officer in the discharge of his duties, and another for changing the grade marks on apples after they had undergone inspection. Convictions were also secured for the shipping of packages not properly filled and the packing of fruit unfit for consumption.

An unusually large number of requests were received for special examinations, due in part to the increasing recognition of the value of our inspectors' reports, and also to the early maturing of the crop which caused the later varieties of all kinds of fruit to crowd the early shipments, and resulted in a tendency to repudiate contracts. The inspectors' impartial reports were found of particular value in securing satisfactory settlements.

The number of inspections made was considerably greater than in 1920, being 25,016 this year as compared with 16,786 last season. This was partly due to the increase in the staff but more particularly to the fact that the seasonal inspectors were appointed early enough to inspect the small fruits. The following table shows the number of lots of various kinds of fruit inspected and the number of packages inspected during the past season:—

Variety		Number of Lots inspected	Number of Packages in Lot inspected	Number of Packages inspected
Apples	Barrels	8,464	861,819	59,570
Apples	Boxes	5,995	2,233,524	88,907
Apples	Baskets	113	10,296	1,244
Pears	Packages	1,048	149,859	10,904
Peaches	"	1,999	370,674	26,861
Plums	"	1,274	304,877	13,977
Tomatoes	"	1,306	241,950	20,893
Small fruits	"	4,817	713,822	142,661

PUBLICATIONS BRANCH

The work of the Publications Branch comprises (1) the compilation and revision of mailing lists, (2) distribution of publications, (3) preparation and distribution of press articles, (4) duplicating, and (5) the publication of the *Agricultural Gazette of Canada*.

SYSTEM OF DISTRIBUTION

The restriction of the supply of publications has been followed by the abandonment of the principle of general distribution and the substitution of the direct request system in the sending out of the reports, bulletins and other publications of the department. There being no general distribution, even within the limits of the classes comprising the general mailing list, the maintenance of those classes and the work involved thereby was rendered futile. It was therefore decided, after consultation with the chiefs of the various branches of the department, to discontinue the classification of the general list by subject, and to classify only by provinces.

In future a general distribution to all the names appearing on this list will be made only in the case of *Seasonable Hints,* an Experimental Farm leaflet, issued every four months. The practice adopted early in the year of issuing with it an announcement of new publications will be continued, so that all who receive *Seasonable Hints* are kept advised of the publications obtainable on application.

This method of distribution will, without doubt, result in economy in the editions of printed bulletins, and so far as the relative advantage of the two distribution methods are concerned, it is only necessary to say that limited supply makes wholesale distribution no longer possible.

PUBLICITY

The request method of distribution, to be effective, involves notifying the public whenever a publication is issued, and the stimulating of demand by forms of advertising such as press notices. Unless this is done, the results of the department's work, as detailed in its publications, will fail in a large measure to reach the public. This requirement was met in two ways, first, by distributing a list along with *Seasonable Hints,* as already described, and, second, by keeping the press supplied with "write-ups" of publications.

The publicity work comprises the publication of the *Agricultural Gazette of Canada;* the preparation and distribution of news items for the press concerning departmental activities; the preparation and distribution to the press of notices relating to publications, and of digests of articles prepared by members of the departmental staff when supplied for that purpose or published in the *Agricultural Gazette.*

Press Articles.—Early in the year arrangements were made by the branch for keeping the smaller weekly newspapers supplied with brief articles of the nature already indicated. As newspapers of this class reach a section of the community not readily reached by any other section of the press—which would naturally include at least the advanced element of the farming population—it was believed that to take advantage of this channel of communication would well repay the effort.

The marked increase that has taken place in the number of individual requests for publications received during the year, as evidenced by the figures presented in this report, clearly indicates that the publicity given in this and other ways to the reports and bulletins issued by the department has been fruitful in results, and is greatly extending the usefulness of these publications by bringing them more widely to the attention of the farming community.

The object of the branch's publicity work as at present organized is primarily to stimulate interest in and create a demand for the department's publications. It does not extend to the distribution of press articles relating to general agricultural practice, that being in the hands of the branches having to do with those fields of work. It does, however, tend to increase the usefulness of the agricultural and rural press by supplying items of information of value to readers.

The number of press articles, averaging about 350 words each, sent out during the year was as follows:—

Agricultural Press	103
Weeklies	346
Dailies	35
Total	484

The relation of the articles distributed to the several branches of the department was as follows:—

Branches	Number of Articles
Experimental Farm	192
Dairy and Cold Storage Branch	58
Entomological Branch	18
Live Stock Branch	60
Seed Branch	31
Fruit Branch	28
Health of Animals Branch	39
Publications Branch	24
International Institute Branch	9
Agricultural Instruction Branch	10
Miscellaneous	15
Total	484

THE AGRICULTURAL GAZETTE

The aim of the "Agricultural Gazette of Canada" is to provide a source of information as to the policies and activities of the Dominion Department of Agriculture and of the Provincial Departments of Agriculture and of Education, in so far as the activities of the latter relate to agricultural education. By recording and keeping under review the progress of the work of the Dominion and the provinces, agricultural workers throughout Canada are kept informed as to developments, are assisted in their efforts, and a spirit of co-operation and unity is thereby promoted.

The Agricultural Gazette does not deal with what may be termed "applied agriculture," nor with recording the progress of strictly scientific research. The former is looked upon as belonging to the sphere of the agricultural press; the latter is dealt with elsewhere.

The Agricultural Gazette is sent free to agricultural workers and instructors, including school teachers who have the required agricultural teaching qualifications; to members of Parliament; to libraries; to the press, and, as an exchange, to institutions and individuals in other parts of the Empire and in foreign countries. There is also a small paid subscription list, but this is negligible.

The Agricultural Gazette is issued bi-monthly by the Publications Branch of the Department, the edition being 7,500 copies in English and 1,550 in French. The cost has been reduced by bi-monthly publication instead of monthly, as formerly, and this has been accomplished without materially lessening the value of the journal for the purpose for which it is intended. The criticism is sometimes heard that the Agricultural Gazette contains no "news" that has not already been published in some section or other of the agricultural press; that the agricultural press serves every purpose for which the Gazette is intended. These criticisms are based on apparent misapprehension as to the purpose of the Gazette and what it aims at accomplishing. The Gazette is not and cannot be a purveyor of news in the same sense as the daily and weekly press. It seeks to collect information as to agricultural developments in every province, so as to afford a comprehensive view of progress in the Dominion as a whole, and to record same for reference. No other publication undertakes to do this, and therefore the Gazette fills a sphere that no other regional publication fills, and does so without trespassing on the field covered by the agricultural press.

The Gazette attempts to give wider publicity to departmental effort on behalf of agriculture, particularly in so far as the Dominion Department is concerned, thereby enhancing, it is believed, the value of the work carried on.

REVISION OF MAILING LISTS

The day-to-day revision of the mailing lists is continuous throughout the year, and involves a large amount of detail. Besides the general list, certain special lists

are maintained, including those of the Seed, Live Stock, Dairy, Entomological, Fruit and International Institute Branches for the distribution of market reports, of circulars having to do with the regulatory laws administered by the department, and other matters.

A special revision of the general list was undertaken and practically completed during the year. The general list comprises 250,000 names, and will be retained in its entirety for the distribution of "Seasonable Hints," while the revision will constitute a sub-division of about 60,000, which will be available for special purposes.

DISTRIBUTION

During the year, seventy-five new publications were received, of which eight were reprints.

The following comparative statement shows the classes of publications and the number of copies distributed in 1920-21 and 1921-22.

	1920–21	1921–22
Reports	15,719	15,249
Bulletins	234,314	583,096
"Seasonable Hints"	712,911	976,709
Pamphlets	117,629	58,851
Circulars	168,155	608,070
Leaflets	27,058	18,764
The Agricultural Gazette	64,748	52,714
Total	1,340,534	2,313,453

Announcements, mailing list application cards, etc., to the number of 1,122,083 were despatched, compared with 922,316 in the year previous.

Communications requesting publications numbered 80,799, while the number of publications sent in response thereto was 811,784, compared with 410,175 in 1920-21.

Careful attention is necessary in interpreting requirements, as well as in transmitting requests for additional information to other branches and departments.

The number of envelopes addressed from regular lists by automatic machinery was 1,684,611, while those addressed by hand in dealing with requests for publications approximated 120,250, making a total of 1,804,851.

DUPLICATING

Two multigraph machines were made use of in duplicating, and recently a mimeograph was added. The volume of work, much of which was for other branches, was as follows:—

Circulars, form letters, regulations, etc. (100) (copies)	100,846
Press articles (166) "	35,888
"News Letter," Entomological Branch (12) (pages)	7,176
Total	143,910

CHANGES EFFECTED

Although the branch has no supervision over printing, a revision of the system of numbering and classifying publications was instituted, and steps were taken to secure an improvement in the appearance of bulletins, pamphlets and circulars. The use of specially designed covers was recommended wherever the importance of the document warrants their employment.

The addressing of envelopes by typewriter instead of by hand was introduced; and form letters were made use of in dealing with requests wherever their employment was indicated.

A complete stock-taking of publications was effected, and a system of recording was introduced whereby the quantities on hand are immediately ascertainable.

THE AGRICULTURAL INSTRUCTION ACT BRANCH

The work conducted by the several provinces under the Agricultural Instruction Act during the year ending March 31, 1922, is summarized as follows:—

ONTARIO

From the grant of $1,100,000 made annually by the Dominion for agricultural instruction, the province of Ontario received $336,303 for the purposes contemplated in the annual agreement. Of this sum, $104,000 was devoted to the agricultural college and to the agricultural school and farm at Kemptville, $135,000 to the agricultural representative service, $10,000 to vegetable growing demonstrations, and $40,000 to elementary agricultural education. The balance was devoted to various purposes, such as soil and drainage demonstrations, the encouragement of co-operation and instruction in marketing, the women's institute extension work, short courses, demonstrations with vegetables, and hardy fruits in New Ontario, and in other ways, all tending to the advancement of agriculture and improvement in rural life.

Fifty agricultural representatives are employed who render service in all phases of agriculture, with special emphasis on work among the boys and girls and young men and women of the farms. In 1921, 442 school fairs were held in which 93,715 boys and girls participated. Agricultural classes were held to the number of 39, running for one month, with a total attendance of 1,138. These serve as a basis for junior farmers' organizations, and for the holding of competitions in the growing of farm crops and the rearing of swine and calves for profit, and the judging of live stock, the winners receiving a two weeks' short course at the Agricultural College.

The Kemptville Agricultural School is also an outcome of the classes held by the agricultural representatives, and is intended to serve the eastern portion of the province. The enrolment was first year 28; second year 16, and in the domestic science class for girls, 16, making a total of 60 students.

There were some 2,000 public and separate schools and 30 high schools in the province in 1921 with classes in agriculture. Three high schools maintained special agricultural departments. Practically all these schools conducted school plots. At the Normal Schools 1,330 teachers-in-training received agricultural instruction. In 1921, 524 teachers attended the summer courses in agriculture held at the Ontario Agricultural College and at two other points in the province.

QUEBEC

Quebec's share of the agricultural instruction grant amounts to $271,113.76 annually. From the funds so derived practically every branch of agriculture in the province is aided and extended. To indicate the variety of purposes to which the money is put, it may be noted that during the year under review, $75,000 was devoted to Macdonald College, the School of Agriculture at Ste. Anne de la Pocatiere and the Oka Agricultural Institute; $35,000 to horticultural and entomological work, $69,000 to agricultural representatives, who now number some 48, and $20,000 to the promotion of agriculture and domestic science in schools and academies. The development of poultry husbandry was aided with a grant of $18,000, animal husbandry with $9,000, drainage demonstrations with $9,000, seed selection and demonstrations with a like amount, and short courses and lectures with $913.76. Other industries aided including dairying, bee-keeping, maple sugar and syrup producing. Lectures and demonstrations in agriculture were held to the number of 1,149 in 101 localities; attendance, 47,137. In house-keeping and agriculture for women, lectures and demonstrations to the number of 819 were conducted in 54 localities, with an attendance of 49,441 persons. The number of pupils conducting school or home gardens was 21,217, and the total number of school fairs held was 110.

WESTERN PROVINCES

Out of the grant made to the different provinces under the Agricultural Instruction Act the three Prairie Provinces receive a total of $227,807.21. Of this sum Manitoba received $77,113.11, Saskatchewan $81,728.48, and Alberta $66,965.62.

Manitoba.—The principal features of the grant to the province of Manitoba were the allotment of $19,000 to extension schools, of $15,000 to aid in the teaching of home economics, and of $16,000 for the encouragement and development of boys' and girls' clubs. Thus, nearly two-thirds of the grant was devoted directly to instruction in agriculture for the youth of both sexes. Eight thousand dollars went towards meeting the expenses of the agricultural representative system, and the balance of $21,000 towards dairy work, poultry work, bee-keeping, cost of Killarney demonstration farm, and to soil analysis and survey.

The extent of the work in home economics is indicated by the fact that during the year 144 dressmaking courses were held with a total enrolment of 2,186, and 79 millinery courses with an enrolment of 1,825.

Under an arrangement that exists between the provincial departments of agriculture and education and the Agricultural College, boys' and girls' clubs and school fairs are carried on co-operatively. In 1921, 225 central clubs and 1,600 branch clubs were organized, with a membership of 30,000. At the school fairs, held practically by all the clubs, school and club work is exhibited. Entries were made of 1,302 pigs, 1,167 calves, 392 sheep, 397 colts, 5,375 chickens, 14,784 specimens of cookery, grain 1,443, 22,355 of vegetables, 6,123 samples of canning, 2,497 of dairy products, 2,225 of weeds, insects 165, mechanics 2,285, specials 1,871, and school 54,014. In all there were about 130,196 exhibits from 30,237 exhibitors.

Last year 1,000 girls took part in demonstration team work. The live stock judging teams for boys were equally popular, and the 106 champions were given a trip to Winnipeg.

The short courses or extension schools for men were conducted as usual during the winter months, extending over a period of from one to two weeks.

Community institute meetings were held to the number of 380, at which 580 addresses were delivered, the total attendance being 36,000. Motion-pictures were effectively used in the work.

There are six agricultural representatives with a director in charge. Their duties relate to live stock improvement, boys' and girls' clubs, weed control, and similar matters, within their respective districts.

Saskatchewan.—The grant assists in equal amounts (1) the research and extension work of the College of Agriculture; (2) the special activities of the Department of Agriculture in connection with better farming trains, co-operation and marketing, animal husbandry, field husbandry, and dairying; and (3) school agriculture and related activities.

At the university seven members of the staff are paid from the funds, who are engaged in teaching and extension work, including the superintendent of homemakers' clubs and her assistants. These clubs since their organization ten years ago have linked up in a very effective way nearly 200 communities with the College of Agriculture.

Among the notable efforts of the year were the better farming trains, the interprovincial weed special trains, and the campaign for better sires. The better farming trains visited 89 points and were attended by 37,000 persons.

The work under the supervision of the Department of Education includes teacher-training in household science and agriculture at the provincial normal schools, the holding of short courses in household science, the inspection of household science classes, boys' and girls' club work, and school fairs. During the year 64 clubs and 247 branches were organized and 3,865 members engaged in 6,217 pro-

jects. School exhibitions were held to the number of 285. The growth of these fairs has been rapid, namely, from 14 in 1914. Bulletins on household science and school agriculture were published.

Alberta.—In Alberta, more than fifty per cent of the year's grant, or $40,000, was devoted to the maintenance of the six agricultural schools of the province; $14,900 to agricultural representatives and their work, $9,500 to women's work, and $2,500 to the promotion of the poultry and egg-marketing service.

With reference to the schools of agriculture, the provincial agricultural department has taken particular care to equip and staff the schools in such a way that the best type of agricultural instruction may be given. The course of two years' duration gives special attention to field and animal husbandry, while farm mechanics, blacksmithing, and other useful and necessary work on prairie farms, are made prominent, as are dairying and poultry keeping, so as to make the course a comprehensive education in practical agriculture.

The extension work of the schools includes winter short courses attended by a number of short term students and by the farmers themselves.

British Columbia.—British Columbia participates in the grant to the extent of $69,199 annually, and a wide field of work is covered. According to the year's agreement, $10,000 was devoted to agricultural instruction in public, high, and normal schools and the training of teachers, and $23,000 to the University of British Columbia College of Agriculture extension and investigation services; $6,000 towards the cost of publications; 9,000 to the bee-keeping industry, including demonstration apiaries; $6,000 to pathological and entomological investigations; $9,000 to dairying and cow-testing, and lesser amounts to dry farming and field crop demonstrations, to seed work, silo demonstrations, horticultural demonstrations, fruit packing and pruning schools, poultry keeping, and for the encouragement of boys' and girls' clubs.

In connection with the grant allotted to school agriculture, a feature has been the appointment of district supervisors of agricultural instruction, who are called upon to conduct a two year course of study in agriculture for high school students, as well as extension work and continuation classes in agriculture during the winter months for those who are no longer attending school.

The policy of the College of Agriculture has been, first, to accumulate data on which to base conclusions, and then by means of bulletins and extension schools to carry these conclusions to the farming community. All work under the Act is organized by projects. These include fertilizer experiments; experiments with clover and grass mixtures; weed survey; cost of milk production; experiments to determine the period of usability of milk; horticultural survey, and poultry survey. Extension schools of four days' duration were held at four points during the year, the total registration being 732.

With regard to the work of the provincial Department of Agriculture, much attention has been given to dairying, poultry and bee-keeping, silo construction, and to horticulture generally. Work in horticulture includes personal visits to fruit growers for the giving of counsel, holding orchard demonstrations, lectures, assisting in judging at fairs, and directing experiments for the control of injurious insects and plant diseases.

MARITIME PROVINCES

While the detailed application of the money in each province is not exactly the same, the purposes to which it has been put are very similar. The Agricultural Representative system has been aided and extended. Short courses have been established and maintained. Demonstrations and lectures have been given in dairying, live stock breeding and rearing, poultry keeping, bee-keeping, soil preparation, and use of fertilizers, improvement of field crops, the care of orchards and fruit-growing,

and in entomological work. Woman's work has been advanced and women's institutes greatly aided. Boys' and girls' clubs and school fairs have been encouraged and their numbers increased. In short, impetus has been given to every existing line of agricultural instruction and education and in many instances to the originating of lines of development not recognized prior to the passing of the Act in 1913.

Nova Scotia.—Nova Scotia received as its quota of the grant the sum of $81,716.69. Of this amount, $23,000 was alloted to staff salaries at the Agricultural College and in extending working facilities. To provide interest and sinking fund on building account $8,000 was allotted. The expenditure on agricultural representatives was $12,000; on entomological work, $7,500; on women's work, $5,000; on dairying $6,000, and $7,700 was distributed among minor activities such as poultry and bee-keeping, field crops, soil and fertilizer demonstrations, and horticulture.

Two agricultural representatives were permanently employed and six for part-time. Short courses were conducted at four local points as well as at the college itself.

The allotment to elementary agricultural education was $12,000. In this division of work are included teacher-training, school clubs, school exhibitions, and school and home gardens. About 5,000 children each year make home gardens under school supervision. School fairs to the number of 220 were held representing 450 schools.

New Brunswick.—From the annual grant of $64,110.80, to the province of New Brunswick, $12,000 was allotted to agricultural representatives, $7,700 to women's institutes, $6,500 to soils and drainage, $4,900 to horticulture, $12,000 to elementary agricultural education and the balance was divided between live stock, dairying, poultry, entomology, agricultural societies, bee-keeping, horticulture, and short courses, in amounts ranging from $3,000 to $4,000 in most cases.

Two agricultural representatives were maintained, who specialized in such practical activities as sheep dipping, docking, etc., poultry culling, potato spraying, and field crop competitions.

Nine branch women's institutes were established during the year, and demonstration lecture courses were carried on both in summer and winter.

The work on soils and crops included demonstration plot work with the use of pulverized limestone, clover hulling was demonstrated and drainage surveys were made.

Under horticulture, assistance in orchard work was given in a number of instances.

Dairying received assistance through the system of factory and creamery inspection and the holding of dairy short courses.

To qualify teachers for instruction in agriculture, the usual courses were provided at the summer schools of science. Gardening and poultry rearing as home projects were given supervision, the produce being exhibited at the school fair.

Prince Edward Island.—Of the $31,749.22 received under the Act, $4,300 provided for a director and an agricultural representative, $4,700 for drainage, soils and crops, $3,000 for dairying and live stock, $3,200 for Women's Institutes, and $12,100 for elementary agricultural education, which includes a contribution of $8,000 towards the cost of maintaining the Technical and Agricultural School at Charlottetown. The work under the various headings is similar to that carried on in New Brunswick and Nova Scotia.

THE INTERNATIONAL INSTITUTE BRANCH

The Canadian office as usual furnished the Institute with a great deal of information concerning agriculture in Canada, part of this information being in connection with the 1922 General Assembly. Statistical data on production, imports, exports and prices of agricultural products were supplied for the 1919-21 issue of the International Yearbook of Agricultural Statistics. Among the other information sent to the Institute were a comprehensive statement on its organization of agricultural statistics in Canada, a memorandum on forestry and forestry statistics in Canada, an article giving a detailed description of the legislation in the various provinces of Canada under which organized facilities have been furnished to farmers, a memorandum on material and social conditions among the rural population of the different provinces, further data on agricultural book-keeping in Canada, etc.

The three bulletins of the Institute, the "International Review of the Science and Practice of Agriculture," the "International Review of Agricultural Economics," and the "International Crop Report and Agricultural Statistics" were received and distributed to selected lists of officials and agronomists throughout Canada.

Summaries are prepared by the branch, from the 300 pages approximately which the three bulletins contain, and published in an allotment of from 20 to 25 pages of space in part V. of the "Agricultural Gazette of Canada." Only the titles and sources of information are given for a great number of articles of interest which, for lack of space, cannot be published even summarily. This is done generally for the whole Bulletin of Agricultural Economics. Any persons desiring it are invited to secure from the branch fuller details in the original Institute bulletins which, upon application, are furnished free of charge. Furthermore, the complete unsummarized articles, contained in the original documents which the Institute reviews, are in most cases available for loan in the library of the branch.

Mr. Louis Dop, delegate for France and Vice-President of the Institute, in a recent report sums up his appreciation of the three bulletins as follows:—

> "If we examine the question fundamentally, the very creation of the International Institute constitutes the most self-evident example of the possibility and the attractiveness of international co-operation in questions of agricultural documentation. In fact, what has been the essential purpose of the creators of the Institute? It is to place at the disposal of the governments, administrations, scientific bodies, men of science and practice, under a synthetic and summary form, the whole body of the whole world's agricultural publications, as well as a summary of the progressive advances of all kinds, whether from the scientific or the practical viewpoint which each of these publications may contain.
>
> "Article 9 of the Convention of 1905 undoubtedly shows that such has been in fact the purpose which the adhering states had in view when they stated: "The Institute, always confining its attention to the international aspect of the various questions concerned, shall: (*a*) collect, study and publish as promptly as possible statistical, technical, or economic information concerning farming, vegetable and animal products, trade in agricultural produce, and the prices prevailing in the various markets; (*b*) communicate the above information as soon as possible to those interested.
>
> "It is self-evident that the governments derive the most substantial benefits from the participation through the Institute in the work of collection, elaboration and summarizing which is realized by means of the technical services of the Institute and which is brought to their knowledge by means of the bulletins.
>
> "There is no doubt that if the States, each acting for itself alone, should collect, study, elaborate and summarize all the international literature which, at

the present moment, forms the basis of the various international publications, the result would be that each Government would incur considerable expenditure and the necessity of creating a staff specialized in the summarizing work.

"By creating the Institute and paying it their annual contribution, the States were advisably relieving themselves of this work and thus realizing an economy in the services of a personnel and in materials. The co-operation of the States in the whole body of work carried on by the Institute consists in the direct information which is sent regularly and periodically to the Institute whether relating to statistical questions or any other information which the different Institute Bureaus solicit from each national administration. Such are the principles and such are the facts confirmed by a series of years of cordial and confident collaboration between the adhering States and the Institute."

The tenth volume of the "International Yearbook of Agricultural Legislation" was published. It contains the legislation on agriculture enacted by the different countries during the year 1920. In the intervals between the issues of this yearbook, all agricultural laws of importance are printed and distributed without delay to the adhering countries in a separate pamphlet for each law. Theses laws are translated by the branch and communicated to anybody desiring them.

The "International Yearbook of Agricultural Statistics" which covers the ten years 1912-1921, particularly the last three years, is ready for distribution and will be distributed very shortly.

The yearly pamphlets dealing with the production, trade and prices of feeding stuffs and chemical fertilizers were issued. Three important monographs were published on international trade in live stock and animal products, the collection and use of residues and waste products, and oleaginous products and vegetable oils.

Memoranda were prepared in answer to requests for information on subjects relating to agriculture, including co-operation, rural credits, agricultural research, electricity on the farm, marketing, cost of production, etc.

The Statistical Bulletin of the Institute was increased in interest and value by the inclusion of reports from several of the new countries of Europe which have organized statistical services, and for the first time since the war practically all the European countries are furnishing statistics of production, imports and exports of the principal cereals. The "Bulletin of Statistics" is now issued in three separate sections, one for prices, published about the 5th of the month: another for production, about the 20th, and a third for trade and stocks, about the 27th, so as to ensure more prompt and satisfactory publication in the case of each section.

Subsequent to the recommendations made at the instance of Canada at the General Assembly of 1920, the English edition of this Bulletin was greatly improved through substituting the weights, measures and currency of English speaking countries for the metrical system. Acres, centals of 100 pounds, and dollars and cents replace hectares, quintals and francs. Besides, the substitution of bushels for centals, which was also urged by this branch, is practically promised by the Institute, so that shortly the Canadian producer will find the data which interest him concerning prices, production and stocks reduced to the units and measures and currency which he can easily understand.

Cabled crop reports were received monthly from the Institute and at once given, with explanatory comparative data, to the newspapers through the "Canadian Press Limited." A large number of correspondents were furnished with statistical information on the world's crops and live stock, trade in agricultural products and prices.

The publication in the "Agricultural Gazette of Canada" of the series of agricultural articles on the world's cereal situation was continued. An article on the world's live stock with tables giving the numbers of cattle, sheep and swine in the different countries was published.

The Institute is constantly improving its international crop reporting system. At present regular monthly information is received from Canada, United States, India, Japan, Algeria, Egypt, Tunis, Great Britain and Ireland, France, Italy, Bulgaria, Czecho-Slovakia, Hungary and Germany.

Arrangements will soon be made with Spain for a monthly service. Estimates of acreage and production are supplied early. It is expected that Poland will soon furnish regular reports, as a statistical service is already established in that country. Strong efforts are being made to obtain complete reports from Roumania and Jugo-Slavia.

The large producing countries of the Southern Hemisphere are the object of special interest to the Institute. Fairly regular reports are being received from Australia and Argentina, and every effort is being made to obtain more complete and rapid returns from these countries.

As regards the *rapidity* of issuing of crop reports great improvement has been effected during the past year. Most European countries had their statistical services disorganized during the war, but a quick return to efficiency in respect to the publication of earlier forecasts or estimates of harvest yield is shown in the following table:—

COMPARATIVE DATES OF PUBLICATION OF FIGURES CONCERNING WHEAT YIELDS

Countries	1921	1920
Belgium	June 25	August 21
Bulgaria	June 25	September 18
Greece	June 25	August 21
Algeria	June 25	July 17
Tunis	June 25	July 17
Spain	July 23	August 21
Finland	July 23	August 21
Alsace Lorraine	July 23	August 21
Italy	July 23	August 21
Hungary	July 23	August 21
Japan	July 23.	October 23
Netherlands	August 20	October 23
France	September 10	October 23
Poland	September 17	October 23
Roumania (incomplete)	September 24.	December 18
Czecho-Slovakia (incomplete).	September 21.	October 23
Germany	October 10	December 10
Canada	August 10	August 14

The dates referring to Canada are those on which the data were received and forwarded from this Branch by cable. There was considerable delay between such despatch and the reception of the cables by the Institute, which the Cable Company promises to remedy for the future. These delays occurred for each monthly despatch throughout the growing season and varied between two and four days, the latter delay for one despatch only. There was also some delay, although not so great, in the transmission of data from the Institute to this Branch.

LIBRARY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE AT ROME

This library on June 30, 1921, comprised 42,010 volumes and 32,044 pamphlets, altogether 74,342 publications. On the same date the number of periodicals received was 3,004, of which the free exchanges number 1,911. The International Institute proposes to publish very shortly a general catalogue of its library. This has already been prepared to the end of 1917, and is now to be extended to the close of 1921. It

also proposes to resume the monthly Bibliographic Bulletin, publication of which was suspended at the close of 1916, and to insert approximately 5,000 titles per issue, a number which will considerably exceed that of any other catalogue of the kind published by any one of the adhering countries. It is hoped through these two publications to secure the universal adoption of the decimal system of classification and collaboration between the corresponding national institutions and the Institute. The importance of these proposals in the interest of world-wide agricultural bibliography, as well as the co-ordination of agricultural information generally, cannot be overestimated.

LIBRARY OF THE OTTAWA INSTITUTE BRANCH

	1921-22	1920-21
Bound volumes received (from binding, gifts and purchase)	1,393	1,345
Total volumes in library	10,371	
Periodicals (pieces) received	12,717	12,561
Pamphlets received	10,483	10,692
L.C. cards received	6,190	8,346
Number of cards in catalogue (approximately)	225,000	
Number of borrowers	662	415
Number of publications borrowed	4,818	2,754

ANALYSIS OF BORROWERS

	Borrowers		Books borrowed	
	1921	1922	1921	1922
Department of Agriculture (Ottawa)	80	101	752	1,093
Ottawa, exclusive of Department of Agriculture	115	139	1,009	1,266
Ontario, exclusive of Ottawa	67	92	330	587
Quebec	50	104	222	527
British Columbia	29	45	111	273
Alberta	16	27	65	197
Saskatchewan	16	46	121	243
Manitoba	17	47	58	281
New Brunswick	9	24	32	133
Nova Scotia	7	19	24	112
Prince Edward Island	6	12	21	64
United States	3	5	9	40
Belgium	0	1	0	2

A number of important bibliographies were prepared and an increasingly large number of correspondents and visitors to the library were aided in their reference and research work.

Respectfully submitted,

W. R. MOTHERWELL,
Minister of Agriculture.

APPENDIX No. 1

Canada
No. 491.
26th August.

DOWNING STREET, 9 September, 1921.

My LORD,—With reference to my despatch No. 207 of the 25th April, I have the honour to transmit to Your Excellency for the information of your Ministers, copy of a Note from the Danish Minister enclosing copies of a report on the proceedings of the International Seed Control Congress, held at Copenhagen in June last.

I have the honour to be,
My Lord,
Your Lordship's most obedient
humble servant,
(sgd) WINSTON S. CHURCHILL.

Referred to Agriculture.

GOVERNOR GENERAL
HIS EXCELLENCY GENERAL
THE RIGHT HONOURABLE
LORD BYNG OF VIMY, G.C.B., G.C.M.G., M.V.O., etc., etc., etc.

The Danish Minister presents his compliments to the Secretary of State for Foreign Affairs and referring to the Marquess Curzon of Kedleston's note No. N. 5797/2812/15 of May 24th last regarding the International Seed Control Congress has the honour herewith to enclose four copies of a brief report concerning proceedings of the said conference which took place in Copenhagen from the 6th to the 11th of June last.

M. de Grevenkop Castenskiold would be grateful if Marquess Curzon would be good enough to transmit a copy of the above mentioned report to the Governments of New Zealand, Canada, Australia and the Union of South Africa.

London, 26th August, 1921.

The International Seed Testing Congress which took place in Copenhagen from the 6th to 11th of June 1921 proceeded from the beginning to the end in the most excellent way and the best feeling was noted among all the Delegates.

Thirty delegates were present, representing the following 17 countries: Belgium, Canada, Czecho-Slovakia, Denmark, Finland, France, Holland, Italy, Jugoslavia, Norway, Poland, Roumania, Switzerland, Great Britain, Sweden, Germany and Hungaria. The Danish delegates, Professor Dr. W. Johannsen, chairman of the State Seed Testing Board, and Mr. K. Dorph Petersen, director of the State Seed Testing Station, were unanimously elected Presidents of the Congress as a result of the proposition, made to that effect by Sir Lawrence Weaver, Director General of the English Department of Agriculture, and Mr. Insulander, Director General of the Swedish Department of Agriculture.

The detailed and competent discussions on the various subjects were followed with keen interest. Sir Lawrence Weaver proposed to form an association of all Seed Testing Institutions in Europe at the head of which there should be a committee to start the co-operative work, agreed upon, by the Congress. This resolution was carried unanimously by the representatives of the above mentioned countries. The respective Directors of the State Seed Testing Stations in Denmark (K. Dorph Petersen), Holland (F. F. Bruijnung) and Switzerland (A. Volkart) were elected members of the said Committee. The Swiss member was elected also in

view of having carried out and conducted comparative investigations regarding places of origin of Redclover and lucerne-seed. A Committee was formed, consisting of Hofrat V. Degen, Budapest, Professor Voigt, Hamburg, Professor Bussard, Paris and the Director Vitek, Prague and Enesco, Bucharest, to initiate a thorough investigation concerning the occurrence of seed of the parasitical plant Silk (Cuscuta sp.) and the method to fight it.

In addition to the ordinary meetings the Delegates and some few guests were assembled to an official dinner, given by His Excellency the Minister of Agriculture who was present in person. A number of speakers emphasized the opportunity of the congress and its great success. In addition to the ordinary meetings which took place in Copenhagen, an excursion was made to the control fields of the State Seed Testing Station, the State Experiment Station, the Museum of Agriculture and the ancient farm steads at Lyngby and finally to the State Experiment Station at Tystofte, where the leader of the Experiments, Mr. Linhard demonstrated the plant-breeding work.

An invitation, made by Sir Lawrence Weaver, on behalf of the British Government, to hold the next Seed Testing Congress in England in 1924, was unanimously agreed upon by the Congress.

At the close of the Congress Professor Voigt, Sir Lawrence Weaver and Mr. Insulander expressed their thanks in a most hearty way, for the interesting, instructive and pleasant days of the Congress.

Everybody recognized the importance of a thorough education and practice in the analysis of seeds and found it desirable that the leaders among the staff might have an opportunity to work a short time at the main seed testing stations abroad.

One of the department chiefs and one of the assistants of the State Seed Testing Station in London have, in June, been working at the State Seed Testing Station at Copenhagen in order to acquaint themselves with the method in vogue in Denmark in regard to purity-test of grass-seed, as the said method is intended to be introduced into Great Britain from August this year.

(Sgd.) K. DORPH PETERSEN,
Director of the State Seed Testing Station at Copenhagen.

REPORT OF THE DEPARTMENT

OF

MILITIA AND DEFENCE

CANADA

FOR THE

FISCAL YEAR ENDING MARCH 31,

1922

PRINTED BY ORDER OF PARLIAMENT

200-8-22
H.Q. 650-5-26

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 17—1923.]

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G. M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

May it Please Your Excellency:

The undersigned has the honour to present to Your Excellency the report of the Department of Militia and Defence for the fiscal year ending March 31, 1922.

Respectfully submitted,

GEORGE P. GRAHAM.
Minister of Militia and Defence.

Department of Militia and Defence, Ottawa.
October 30, 1922.

Ottawa, October 25, 1922.

The Honourable the Minister,
Department of Militia and Defence,
Ottawa.

Sir,—I have the honour to submit for your consideration, to be laid on the Table of the House, this the Annual Report of the Department of Militia and Defence, for the fiscal year, 1921-22.

I have the honour to be, sir,

Your obedient servant,

EUG. FISET, Major-General,
Deputy Minister.

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C.—Report of the Inspector General.

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E.—Report of the Superintendent, Dominion Arsenal, Lindsay.

F.—Report of the Commandant, Royal Military College.

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REPORT OF THE

DEPARTMENT OF MILITIA AND DEFENCE, CANADA

FOR THE FISCAL YEAR ENDING MARCH 31, 1922

REPORT OF THE CHIEF OF THE GENERAL STAFF FOR THE YEAR ENDING MARCH 31, 1922.

(1) Military Policy

To be prepared for any emergency which may arise it is necessary to be able to mobilize at short notice a well-trained and fully equipped fighting force, with reinforcements as required. Owing to the financial situation the training of the Militia during the past year was much restricted. An endeavour was made to maintain the vital part of the organization and some success was achieved.

(2) Military Operations and Intelligence

Operations

The work referred to in last year's report has received further attention.

Mobilization

Plans have been made for the Director of Military Operations and Intelligence to become Secretary of the Mobilization Committee. The Director and Assistant Director are members of some of the Sub-Committees on Mobilization, and progress has been made in revising mobilization schemes and plans for concentration of troops.

Intelligence

The establishment of a uniform system of Intelligence, in vogue in the War Office, has been completed at Militia Headquarters and in the Military Districts. The reorganization of the Regimental Intelligence System has been drawn up, but not yet approved, owing to lack of funds. A Weekly Intelligence Summary has been written and transmitted to officials concerned. Intelligence Circular Letters have been drawn up from time to time on military subjects which affect the defences of the country, the training of the Military Forces of Canada and the general education of officers.

Organization and Liaison

This Directorate has been consulted by the other branches of the Department and by the other directorates of the General Staff Branch concerning matters of military organization, Peace and War Establishment, Location of Units, etc. Liaison with the Naval Department, the Air Board, the Royal Canadian Mounted Police and with other departments of the Government connected with the defences of the country or with the collection of military intelligence and the production of maps, has been carried out by this Directorate.

General

The Director and the Assistant Director have given lectures dealing with Military Operations and Defences, Military Intelligence and Military Organization, at various times and places.

The Director and Assistant Director have carried out some inspections for the Chief of the General Staff and have visited the Military Districts, to report on military questions.

The Director and Assistant Director have been members of various Boards of Officers to investigate and report on Development of Military Properties, Use of Military Properties, Clothing and Equipment, Pay and Allowances, Questions of Economy, and Military Organization, generally.

Various questions concerning Military History; Operations of the Canadian Forces in the late war; Qualification of Officers; Condition of Permanent Force Units; Improvement of Training, Education and Moral; Military Organization generally; the Organization of a Department of National Defence; Promotion and Retirement of Officers; have been referred by the Chief of the General Staff to this Directorate for investigation and expression of opinion in the shape of special reports.

Departmental Library

The Departmental Library is controlled by this Directorate. Two hundred volumes concerning military subjects have been purchased during the year. Ten volumes have been presented to the Library by authors. Other Departments of the State, Provinces, and Institutions have forwarded to the Library various state papers, reports, etc. Military periodicals and magazines of general interest have been subscribed for and circulated throughout the offices of the Department. Reports of World's Conferences, Disarmament Conferences, Peace Conferences, etc., have been received and taken on charge in the Departmental Library. The retirement of the Librarian during the year necessitated the appointment of a new librarian, who although a civil servant, is an ex officer of the Permanent Forces of Canada and the C.E.F. and well qualified in military matters, as well as in general library duties.

(3) Military Training and Staff Duties

TRAINING

Remarks.—There was a strong desire shown by the Non-Permanent Active Militia for Central Camps of Instruction, and such camps were held to a limited extent in Districts where possible on the money available. In other cases, training at local camps and local Headquarters was resorted to. The keenness and energy displayed by the Active Militia generally was of a high order.

While the training carried out was the means of all ranks maintaining their ground, it was not sufficient to make very appreciable strides in general efficiency. The results obtained were, however, only curtailed by the want of a more extensive programme which was not possible on the limited funds available.

Permanent Active Militia

The training of units of the Permanent Active Militia was carried out in the respective areas under arrangements made by General Officers Commanding Districts, with the exception of the following which trained at camps of instruction as shown:—

Unit	Camp	Period	
		From	To
1 Sqdn. R.C.D. and H.Q.	Petawawa	2-6-21	29-8-21
1 Sqdn. R.C.D.	"	7-7-21	29-8-21
1 Sqdn. L.S.H. (R.C.)	Hughes	3-6-21	(Approx. 5 wks)
1 Sqdn. L.S.H. (R.C.) and H.Q.	Sarcee	15-6-21	15-8-21
H.Q. R.C.H.A.	Petawawa	26-5-21	29-8-21
"A" and "N" Btys. R.C.H.A.	"	26-5-21	29-8-21
"C" Battery R.C.H.A.	Hughes	2-6-21	7-9-21
	Sarcee	10-7-21	
No. 3 Heavy Bty. R.C.G.A.	Petawawa	26-5-21	29-8-21
No. 4 Co. R.C.G.A.	"	31-5-21	29-8-21
"B" Co. R.C.R.	Niagara	6-6-21	7-8-21
"D" Co. R.C.R.	Pt. aux Trembles	22-6-21	15-8-21
Royal 22nd Regt.	Levis Camp	15-6-21	31-8-21
C.P.M.G. Bde. H.Qs. and "B" Co.	Niagara	6-6-21	12-8-21

Non-Permanent Active Militia

Owing to the financial restrictions the period of training, except in the case of Artillery, was necessarily limited to a maximum of nine days, and units were confined to an average strength of 50 per cent. Organized Artillery units were authorized to train at 80 per cent of strength for a period of six days, and in addition, Firing Detachments were sent to Practice Camps for a period of four days.

Units were trained at Camps of Instruction or local Headquarters as shown below:—

Camps of Instruction

Cavalry—(9 days)—

The Governor General's Body Guard.
The Princess Louise Dragoon Guards.
Fort Garry Horse.
1st Hussers.
2nd Dragoons.
3rd Prince of Wales Canadian Dragoons.
4th Hussars.
5th British Columbia Light Horse (H.Q. and 2 squadrons).
7th Hussars.
8th Princess Louise's New Brunswick Hussars.
9th Grey's Horse.
11th Hussars.
12th Manitoba Dragoons.
13th Scottish Light Dragoons.
15th Canadian Light Horse.
16th Canadian Light Horse.
17th Royal Canadian Hussars.
18th Canadian Light Horse.
19th Alberta Dragoons.
The New Brunswick Dragoons.
The Prince Edward Island Light Horse.
1st Regt. Saskatchewan Mounted Rifles.
1st Regt. B.C. Mounted Rifles (H.Q. and 2 Sqdns).
1st Regt. Alberta Mounted Rifles.
1st (Mississauga) Regt. Ontario Mounted Rifles.
1st Regt. Eastern Townships Mounted Rifles.
1st Regt. King's Nova Scotia Mounted Rifles.
1st Regt. Manitoba Mounted Rifles.

Artillery—(6 days)—

1st Brigade C.F.A.—
Headquarters.
1st Battery.*
2nd Battery.*

4th Brigade C.F.A.—
4th Battery.*
2nd (Heavy) Battery attached 4th Bde. C.F.A.*

6th Brigade C.F.A.—
Headquarters.
35th Battery.*
81st Battery.*

7th Brigade C.F.A.—
12th Battery.*

9th Brigade C.F.A.—
Headquarters.
3rd Battery.*
32nd Battery.*
34th Battery.*

10th Brigade C.F.A.—
18th Battery.*
Ammunition Column.

12th Brigade C.F.A.—
8th Battery.*
89th Battery.*
90th Battery.*

13th Brigade C.F.A.—
57th Battery.*

14th Brigade C.F.A.—
52nd Battery.*

15th Brigade C.F.A.—
Headquarters.
31st Battery.*
68th Battery.*
85th Battery.*

16th Brigade C.F.A.—
Headquarters.
6th Battery.
36th Battery.
83rd Battery.*

17th Brigade C.F.A.—
44th Battery.*
64th Battery.*

18th Brigade C.F.A.—
Headquarters.
20th Battery.*
39th Battery.*
93rd Battery.*

19th Brigade C.F.A.—
23rd Battery.*
91st Battery.*

*Firing Detachments to Practice Camps.

Engineers—(9 days)—
1st (Brighton) Field Company.

Canadian Corps of Signals—
No. 8 Signal Company (9 days).
No. 7 Fortress Signal Company (3 days).

Infantry—(9 days, except where otherwise stated)—
H.Q. 1st Infantry Brigade.
1st Bn. Middlesex Light Infantry.
1st Bn. The Bruce Regiment.
1st Bn. The Huron Regiment.
1st Bn. The York Rangers.
1st Bn. The Grey Regiment.
1st Bn. The Governor General's Foot Guards (3 days).
1st Bn. The Ottawa Regiment (23 days).
1st Bn. The Ontario Regiment (H.Q. and 2 Cos. only).
1st Bn. The Simcoe Foresters.
1st Bn. The Peel Regiment (H.Qs. and 2 Cos. only).
1st Bn. The Halton Rifles (H.Qs. and 2 Cos. only).
1st Bn. The Haldimand Rifles (H.Qs. and 3 Cos. only).
1st Bn. The Lincoln and Welland Regiment (H.Qs. and 3 Cos. only).

1st Bn. Le Regt. de Chateauguay.
1st Bn. Le Regt. de Joliette.
1st Bn. Le Regt. de Montmagny (12 days).
1st Bn. Le Regt. de Quebec (12 days).
1st Bn. Les Franc-tireurs du Saguenay (12 days).
1st Bn. Le Chasseurs Canadiens (12 days).
1st Bn. Les Fus. du St. Laurent (12 days).
1st Bn. Le Regt. de Levis (14 days).
1st Bn. Le Regt. de Beauce (12 days).
1st Bn. The Lunenburg Regiment.
1st Bn. The Pictou Highlanders.
1st Bn. The Cumberland Regiment.
1st Bn. The Cape Breton Highlanders.
1st Bn. The Prince Edward Island Regiment.
1st Bn. The Annapolis Regiment.
1st Bn. The Colchester and Hants Regiment.
1st Bn. The Carleton Light Infantry.
1st Bn. The York Regiment.
1st Bn. The Northumberland Regiment.
1st Bn. The New Brunswick Rangers.
4th Bn. South Sask. Regiment.
3rd Bn. North Sask. Regiment.

Canadian Army Service Corps.—Nos. 2, 9, and 12 Companies (M.D. 2) Adm. details.

Canadian Postal Corps.—Adm. details (M.D. 2).

Canadian Army Medical Corps.—
No. 2 C.C. Station (6 days).
No. 2 Field Ambulance.

Local Headquarters—(9 days, except otherwise stated)

Artillery—(6 days)—
5th Battery.*
7th Battery.*
9th Battery.*
10th Battery.*
11th Battery.*
13th Battery.*
15th Battery.*
17th Battery.*
24th Battery.
27th Battery.*
29th Battery.
30th Battery.*
38th Battery.
40th Battery.*
53rd Battery.*
58th Battery.*
61st Battery.*
66th Battery.
77th Battery.
78th Battery.*
79th Battery.*
82nd Battery.
84th Battery.
86th Battery.
92nd Battery.*
H.Q., 2nd Brigade.
1st Heavy Battery C.A.*
2nd Siege Battery C.A.*
3rd " " " *
4th " " " *
5th " " " *
15th Heavy Battery.
6th Siege Battery C.A.*
7th " " " *
8th " " " *
9th " " " *
12th " " "
14th " " "
1st Halifax Regt. C.G.A. (H.Q. and 4 Cos.).*
5th B.C. Regt. (H.Q. and 2 Cos.).
6th Quebec and Levis Regt. (H.Q. and 3 Cos.) (9 days).*

*Firing Detachments to Practice Camps.

Engineers—(9 days)—

3rd Field Company.
4th Field Company.
5th Field Company.
6th Field Company.
13th Field Company.
14th Field Company.
4th Field Troop.

Canadian Corps of Signals—(9 days)—

H.Q. 2nd Bn. C.C.S.
H.Q. 10th Bn. C.C.S.
H.Q. 12th Bn. C.C.S.
No. 1 Signal Coy.
No. 3 Signal Coy.
No. 4 Signal Coy.
No. 6 Signal Coy.
No. 10 Signal Coy. (6 days).
No. 11 Fortress Signal Coy.
No. 12 Signal Coy.
No. 13 Signal Coy.
No. 16 Signal Coy.
3rd Signal Troop.
5th Signal Troop.
6th Signal Troop.
7th Signal Troop.

Corps of Guides—(9 days)—

No. 4 Cyclist Co.

C.O.T.C.—(9 days)—

Toronto University Contingent (H.Q. and 3 Coys. only).
McGill University Contingent.
Loyola College Contingent.
Alberta University Contingent.
Queen's University Contingent.
Manitoba University Contingent (12 days).
Mount Allison University Contingent (12 days).
New Brunswick University Contingent.
Western University Contingent (H.Q. and 2 Coys. only).

Infantry—(9 days)—

1st Bn. The Oxford Rifles.
1st Bn. The Elgin Regiment.
1st Bn. The Perth Regiment.
1st Bn. The Highland Light Infantry of Canada.
1st Bn. The Wellington Rifles
1st Bn. The Western Ontario Regiment.
1st Bn. The Kent Regiment.
1st Bn. The Queen's Own Rifles.
1st Bn. The Royal Grenadiers.
1st Bn. The Royal Hamilton Regiment.
1st Bn. The Norfolk Rifles (H.Q. and 2 Cos. only).
1st Bn. The Ontario Regiment.
1st Bn. The Dufferin Rifles.
1st Bn. The Wentworth Regt.
1st Bn. 48th Regiment (Highlanders).
1st Bn. The Argyll and Sutherland Highlanders.
1st Bn. The Irish Regiment.
1st Bn. The Toronto Regiment.

1st Bn. The Toronto Scottish Regt.
1st Bn. The Governor General's Foot Guards (6 days).
1st Bn. The Hastings and P. E. Regt.
1st Bn. Prince of Wales Own Rifles.
1st Bn. Argyll Light Infantry.
1st Bn. The Northumberland Regiment.
1st Bn. The Brockville Rifles.
1st Bn. The Lanark and Renfrew Regiment.
1st Bn. The Victoria and Haliburton Regt.
1st Bn. The Durham Regiment.
1st Bn. The Frontenac Regt.
1st Bn. The Grenville Regt.
1st Bn. The Peterborough Rangers.
1st Bn. The Stormont and Glengarry Regt.
1st Bn. The Ottawa Regiment (6½ days).
1st Bn. The Hull Regiment.
1st Bn. The Canadian Grenadier Guards.
1st Bn. The Victoria Rifles of Canada.
1st Bn. The Royal Highlanders of Canada.
2nd Bn. The Royal Highlanders of Canada.
1st Bn. The Sherbrooke Regiment.
1st Bn. Les Carabiniers de Sherbrooke.
1st Bn. Les Carabiniers Mont-Royal.
1st Bn. Le Regt. de St. Hyacinthe.
1st Bn. The Three Rivers Regiment.
1st Bn. The Royal Montreal Regiment.
1st Bn. The Royal Rifles of Canada (6 days).
1st Bn. Les Voltigeurs de Quebec (12 days).
1st Bn. The Halifax Regiment.
1st Bn. The Princess Louise Fusiliers.
1st Bn. The St. John Fusiliers.
1st Bn. The Winnipeg Rifles.
1st Bn. The Rainy River and Kenora Regt.
1st Bn. The Winnipeg Grenadiers.
1st Bn. The Cameron Highlanders of Canada.
1st Bn. The Winnipeg Light Infantry.
1st Bn. The 1st B.C. Regiment.
2nd Bn. The 1st B.C. Regiment.
3rd Bn. The 1st B.C. Regiment.
1st Bn. The Rocky Mountain Rangers.
1st Bn. The Seaforth Highlanders of Canada.
1st Bn. The Canada Scottish Regiment.
1st Bn. The Irish Fusiliers of Canada.
2nd Bn. South Saskatchewan Regt.
3rd Bn. South Saskatchewan Regt.
Headquarters Edmonton Regiment.
1st Bn. Edmonton Regiment.
2nd Bn. Edmonton Regiment.
1st Bn. The Calgary Regiment.
2nd Bn. The Calgary Regiment.
1st Bn. The Alberta Regiment.
2nd Bn. The Alberta Regiment.

Canadian Machine Gun Corps—

1st C.M.G. Squadron.
1st C.M.G. Brigade (H.Q. and 4 Batteries only).
2nd C.M.G. Brigade.
3rd C.M.G. Brigade (H.Q. and 2 Companies only).
4th C.M.G. Brigade.
6th C.M.G. Brigade.
7th C.M.G. Brigade.
8th C.M.G. Brigade (H.Q. and 2 Companies only).
10th C.M.G. Brigade.
11th C.M.G. Brigade.
12th C.M.G. Brigade.
13th C.M.G. Brigade.

C.A.S.C.—

No. 5 Company.
No. 6 Company.
No. 19 Company.

C.A.M.C.—

No. 1 Field Ambulance.
No. 3 Field Ambulance.
No. 8 Field Ambulance.
No. 10 Field Ambulance.
No. 17 Cav. Field Ambulance.
No. 23 Field Ambulance.

Canadian Ordnance Corps.—

No. 10 Detachment.

SCHOOLS OF INSTRUCTION

Remarks.—By the reopening of Royal Schools of Instruction in Canada for combatant arms, an increase in the number of Provisional Schools authorized, and by taking advantage of certain Specialist Courses in England for officers and N.C.O's. of the Permanent Active Militia, a considerable amount of instructional work has been carried out during the past year. With more adequate financial support the schools are now in a position to meet the needs of the Canadian Active Militia.

COURSES IN ENGLAND

During 1921-22 officers and N.C.O's. of the Permanent Active Militia were undergoing courses in England as shown below:—

Staff College

Brig.-Gen A. G L. McNaughton, C.M.G., D.S.O., January, 1921, to December, 1921.

Lt.-Col. C. F. Constantine, D.S.O., R.C.A., January, 1921, to December, 1921.

Major (Bvt.-Col.) H. F. H. Hertzberg, C.M.G., D.S.O., M.C., R.C.E., January, 1921 to December, 1922.

Capt. (Bvt.-Major) H. T. Cock, M.C., R.C.R., January, 1921, to December, 1922.

Major (Bvt.-Lt.-Col.) W. G. Beeman, D.S.O., R.C.A., January, 1922, to December, 1923.

Capt. (Bvt.-Lt.-Col.) R. J. Brook, C.B.E., D.S.O., R.C.R., January, 1922, to December, 1923.

Ordnance College Course

Captain R. N. C. Bishop, R.C.O.C., November, 1920, to August, 1921.
Lt. and Bvt. Capt. H. M. Reynolds, R.C.A., November, 1920, to December, 1922.
Lieut. G. F. Morrison, R.C.A., November, 1920, to December, 1922.
Capt. and Bvt.-Major D. E. Dewar, R.C.O.C., January, 1922, to December, 1923.

Gunnery Staff Course

Captain F. C. Hannington, M.C., R.C.A., October, 1920, to October, 1921.
Captain J. H. Roberts, M.C., R.C.A., October, 1921, to July, 1922.
No. 4098, Sergt. E. Stevenson, D.C.M., R.C.A., October, 1920, to October, 1921.
No. 8010, B.Q.M.S., W. Gray, R.C.H.A., October, 1921, to July, 1922.
No. 8387, Sergt. C. F. Wolfe, R.C.H.A., October, 1921, to July, 1922.

School of Military Engineering

Lieut. E. L. M. Burns, M.C., R.C.E., June, 1920, to November, 1921.
Lieut. G. N. Dickenson, R.C.E., June, 1920, to November, 1921.
Lieut. N. H. Clemes, R.C.E., June, 1920, to November, 1921.
Capt. and Bvt.-Major C. R. Turner, M.C., D.C.M., R.C.E., September, 1920, to May, 1922.
Lieut. C. H. S. Stein, R.C.E., September, 1920, to May, 1922.
Lieut. W. H. Blake, R.C.E., September, 1920, to May, 1922.

Master Gunners' Course

No. 6551, Q.M.S.I., H. J. Wood, R.C.A., April, 1921, to March, 1922.
No. 4164, C.S.M., A. E. Adams, R.C.A., April, 1921, to March, 1922.
No. 6568, Sergt. C. Henshaw, R.C.G.A., April, 1921, to March, 1922.
No. 4131, Sergt. W. Rawling, M.M., R.C.G.A., April, 1921, to March, 1922.

Armament Artificers' Course

No. 34350, Arm. Q.M.S., E. King, R.C.O.C., October, 1920, to November, 1921.
No. 34412, Arm. Staff Sergt. H. Bracegirdle, R.C.O.C., October, 1920, to November, 1921.

Equitation Course

No. 107031, S.S.M., W. C. Roberts, L.S.H. (R.C), April 1, 1921, to March 22, 1922
No. 137030, S.Q.M.S., G. D. Churchward, R.C.D., April 1, 1921, to March 22, 1922.
No. 127033, A/Bdr. R. Johnson, R.C.H.A., April 1, 1921, to March 22, 1922.
No. 137032, A/Bdr. G. Gilpin, R.C.H.A., April 1, 1921, to March 22, 1922.

Courses in Canada

Permanent Active Militia

Staff College Preparatory Course.—The first post-war course for officers preparing for the examination for admission to the Staff College was held from October 1, 1921, to February 27, 1922, at the Royal Military College, Kingston, and was attended by six officers of the Permanent Force.

The course was laid out to give the officers attending a good military training and in particular to assist them in their studies for the above examination.

The six officers attending competed at the examination for admission to the Staff College for the two Staff College vacancies allotted to Canada annually.

Refresher Course.—In conjunction with the above, a Refresher Course for officers of the Permanent Active Militia was held without expense to the public, from October 1, to end of December. This course was attended by three officers while others attended lectures delivered from time to time.

S. M. E. Halifax.—Courses were held for draughtsmen, foremen of works, engine drivers, lamp attendants, searchlight operators and instrument repairers of the R.C.E. A total of 24 other ranks attended during the year.

Non-Permanent Active Militia

There has been a material increase in the amount of instructional work carried out during the past year owing to the facilities for qualifying afforded by the re-opening of Royal Schools.

The reduced strength of the Permanent Force made it difficult, however, to maintain an adequate instructional staff, and consequently the personnel available for this duty were heavily taxed and had, in some cases, to be augmented by N.C.O.'s without experience as instructors.

Courses were conducted at Royal and Permanent Schools as follows:—

School	From	To	Number of Courses	Number attending	
				Officers	O.Rs.
Royal School of Cavalry, Toronto	Oct. 10	Dec. 17	2	5	10
" " "	Jan. 16	Mar. 27		11	24
" " St. Jean	Oct. 10	Dec. 17	2	13	22
" " "	Jan. 16	Mar. 27		22	32
" " Winnipeg	Oct. 10	Dec. 17	2	5	12
" " "	Jan. 16	Mar. 27		20	21
" " Calgary	Oct. 10	Dec. 17	2	7	12
" " "	Jan. 16	Mar. 27		11	28
" Artillery, Kingston	Nov. 14	Dec. 17	3	6	33
" " "	Jan. 9	Feb. 11		8	41
" " "	Feb. 20	Mar. 25		2	58
" " Quebec	Jan. 9	Feb. 4	1	4	12
" " Halifax	Oct. 31	Nov. 26	2		10
" " "				10	18
" " Winnipeg	Nov. 14	Dec. 17	3	3	18
" " "	Jan. 9	Feb. 11		3	26
" " "	Feb. 20	Mar. 25		1	20
School of Military Engineering, Halifax	Jan. 3	April 2	1		5

Non-Permanent Active Militia

School	From	To	Number of Courses	Number attending	
				Officers	O.Rs.
Royal School of Infantry, London	Oct. 10	Dec. 12	2	13	22
" " "	Jan. 16	Mar. 27		19	21
" " Toronto	Oct. 10	Dec. 12	2	3	2
" " "	Jan. 16	Mar. 27		6	15
" " Montreal	Oct. 10	Dec. 12	2	12	1
" " "	Jan. 16	Mar. 27		19	25
" " Quebec	Oct. 10	Dec. 12	2	16	9
" " "	Jan. 16	Mar. 27		17	25
" " Winnipeg	Oct. 10	Dec. 12	2	4	
" " "	Jan. 16	Mar. 27		13	21
" " Victoria	Oct. 10	Dec. 12	2	3	7
" " "	Jan 16	Mar. 27		12	11
" " Halifax	Sept. 26	Dec 10	2	9	17
" " "	Jan. 16	Mar. 27		13	24
Royal School of Machine Guns, Toronto	Jan. 9	Mar. 25	1	11	19
" " Esquimalt	Jan 9	Mar. 25	1	17	16
Royal School of Infantry, London	June 6	July 7	1	12	
" " St. John	July 25	Aug. 29	2	6	10
" " "	Feb. 27	Mar. 27		6	16
Royal School of Cavalry, Moncton	Nov. 21	Dec. 12	1	7	21

In addition to the above the number of Provisional Schools conducted for the various Arms were:—

Arm	No. of Schools
Cavalry	9
Artillery	1
Engineers	2
Signals	47
Infantry	36
Machine Guns	22
Army Service Corps	2

The number of officers and N.C.O.'s who obtained qualifying certificates at the above schools is shown in statements appearing on pages 20 and 21.

STAFF TOURS, WAR GAMES, ETC.

Staff Tours, War Games and Tactical Exercises were carried out at various times and places under arrangements made by District Officers Commanding. Useful lessons were learned and much benefit derived by all concerned.

EXAMINATIONS

Promotion Examinations—Permanent Active Militia

During the year a total of 46 officers presented themselves at the examinations held in April and October. Of this number 14 qualified for the rank of Major and 21 for the rank of Captain.

Foreign Languages

Examinations in French, German and Hollander Dutch, under the regulations of the British Civil Service Commissioners, were held at certain centres in Canada in June, 1921, and January, 1922, at which officers qualified as follows:—

1st Class	interpreters in	French	7
2nd Class	"	"	4
2nd Class	"	German	1
1st Class	"	Hollander Dutch	1

Canadian Officers Training Corps

In addition to the work carried out by Contingents of the C.O.T.C. as shown under "Training" above, 176 members of the C.O.T.C. qualified for commissions in the Infantry of the Non-Permanent Active Militia at the half-yearly examinations held in March and November.

A summary of the results of these examinations is shown on page 22.

SIGNAL SERVICE

The Royal Canadian Corps of Signals with a limited establishment of 5 Officers and 26 Other Ranks, with the assistance of 3 Officers attached from other Units of the Permanent Force and 2 part-time Signal Officers of the Non-Permanent Active Militia, have been engaged during the period under review in organizing and training Signallers of every arm of the Service, both of the Permanent and Non-Permanent Active Militia, and although the above establishment is by no means adequate to allow the Unit to establish a Training Depot to properly carry out its own training and supply the number of Instructors required in each Military District, considerable progress has been made.

The following work has been carried out during the past year by the Royal Canadian Corps of Signals, Signals Inspection and Test Department.

The small staff employed in this Department has been kept busy throughout the year in assembling, testing, and repairing Signalling Equipment received from Overseas, such as Visual Signalling Apparatus, Telephones, Telegraph and Wireless equipment.

For instructional purposes, 21 one-hour lecture notes, fully illustrated with diagrams, together with large diagrams, lantern slides and demonstration equipment, covering technical subjects taught by the Signal Service, have been prepared for distribution to the Instructional Cadre (Signals) and to Units of the Permanent Force and Canadian Corps of Signals.

Having in view the very rapid advances that are being made in radio telegraphy and telephony, and the requirements of the Canadian Air Force in this particular line of communication in connection with their flying stations and patrols in various parts of Canada, considerable experimental work has been successfully carried out in radio telephony.

Radio Stations Operated by the Royal Canadian Corps of Signals

In November, 1921, communication by wireless telegraphy was established between Camp Borden and Ottawa by the Royal Canadian Corps of Signals for the Canadian Air Force, resulting in considerable saving in telegraph and telephone expenses, as well as being the means of speeding up the administrative work between the Canadian Air Force Headquarters and Camp Borden, and in addition, providing the practical work so necessary to keep the Wireless personnel in an efficient state.

At the request of the Air Board, estimates have been submitted for further increasing the Service by establishing radio telephone communication between Ottawa and Camp Borden.

Arrangements have also been entered into for taking over and operating the C.A.F. Radio Telegraph and Telephone Station at High River, Alberta, and for establishing two Radio Telegraph Stations for the C.A.F. flights in connection with the Forestry Patrols in Northern Manitoba, one Station to be located at Victoria Beach and one at Norway House, Man.

A very large field exists for the employment of Signal Service personnel in connection with Federal and Provincial Government Departments requiring communication by wireless telegraphy and telephony, the chief difficulty being in obtaining the right class of recruits and the time required to train the men to carry on the work efficiently.

Instructional Cadre Signals

During the past year, in addition to attending a 7 weeks' course of training at Rockcliffe, in advanced Signal work, the 11 Instructors of the Royal Corps of Signals attached to the Instructional Cadre conducted 7 Pre-classification Courses of 16 weeks Schools of Signalling at Unit Headquarters of the Non-Permanent Active Militia.

The following number of certificates were granted to successful candidates:

Visual Telegraphy.—	
Officers, Grade "A"	48
" Grade "B"	21
Other Ranks, Grade "A"	134
" " Grade "B"	284
Line Telegraphy.—	
Officers, Grade "A"	4
" Grade "B"	1
Other Ranks, Grade "A"	1
" " Grade "B"	6
Grand Total	499

Increase over 1920-21 of 371 certificates.

Certificates issued to Cadets attending Cadet Signalling Classes, held in conjunction with Provisional Schools of Signalling:

1st Year Cadet Semaphore Certificates	993
2nd " Morse Certificates	100
Grand total	1,093

Increase over 1920-21 of 664 certificates.

During the year a total of 134 annual inspections of Signal Sections and Classification of Signallers were conducted. 597 Signallers qualified as 1st Class and 304 as 2nd Class Signallers.

The 7th Hussars in M.D. No. 7 having the best Regimental Signal Section of the Cavalry Units, the Wentworth Regiment in M.D. No. 2 obtained the highest standing of the Infantry Units, while No. 3 Company, 3rd Signal Battalion, Canadian Corps of Signals, took 1st place among Signal Units, C.C. of S., in Visual Telegraphy, No. 12 Signal Company, 12th Signal Battalion in Line Telegraphy.

The Canadian Corps of Signals, Non-Permanent Active Militia

The reorganization and training of the Canadian Corps of Signals is progressing favourably in all Districts, where sufficient accommodation is available.

In each Military District, with the exception of Military Districts No. 6 and No. 7, a Signal Battalion has been authorized, also two Fortress Signal Companies, one for Halifax and one for Esquimalt, and seven Signal Troops, or one for each Mounted Brigade.

During the past year, one Signal Company carried out Annual Training at Camp, namely, No. 8 Signal Company, Charlottetown, P.E.I., Military District No. 6. All other Signal Units of the Canadian Corps of Signals trained at local Headquarters.

SMALL ARM TRAINING

PERMANENT AND NON-PERMANENT ACTIVE MILITIA

Permanent Active Militia

The course laid down to be fired by Cavalry, Engineer, Infantry and Machine Gun units was that prescribed by "Table A" in the Musketry Regulations.

Results obtained by some units show that insufficient importance has been attached to preliminary training, on the other hand, results obtained by other units are entirely satisfactory.

The number of unexercised men is large and far exceeds the exemptions laid down by Musketry Regulations.

For units other than the foregoing, a modified course was drawn up based on Table "A," the results obtained being good particularly in artillery units.

Light Gun Course (Lewis & Hotchkiss guns)

This course ("Table L" Musketry Regulations), was fired by all units authorized to be armed with the Light Gun, except "B" Squadron, Royal Canadian Dragoons, and "B," "C" "D" Companies, Royal Canadian Regiment. The results obtained were good, especially as it is the first year the course has been fired.

Revolver.—The revolver course was fired by units in so far as range accommodation permitted, the results being good.

Non-Permanent Active Militia

The Annual Musketry Course is laid down in "Memorandum for Camps of Instruction, Part I".

Eleven units fired the full course as laid down.

Fifty-six units were only partially exercised, owing to distance from rifle range, lack of range accommodation or shortage of time.

Remaining units did not fire for various reasons, such as unauthorized to train or lack of ranges, etc.

No reports were received of any units having carried out Light Gun or Revolver Training. No doubt this was due to restricted period of training.

Canadian Small Arms School Courses

The first regular courses (courses Nos. 1 and 2) of the Canadian Small Arms School opened at Rockcliffe on August 22, 1921, and ended October 8, 1921.

At the conclusion of the two first regular courses a special. Physical Training course was held from October 10, 1921, to October 15, 1921.

"A" and "B" Wings were in operation. "C" Wing was not in operation during the period under review.

Students for the foregoing courses were accepted from all Military Districts, the numbers being as follows:

"A" WING

Officers	Other Ranks
18	85

"B" WING

Officers	Other Ranks
2	24

The object of the courses was as outlined in Militia Order No. 352, dated June 17, 1921, those attending the courses being—

(i) Certain Officers of the Permanent Active Militia.

(ii) All W.Os. and N.C.Os. of the Instructional Cadre.

(iii) Prospective instructors for the Instructional Cadre.

Examination results were as under:—

	Passed "Distinguished"	Passed	Failed
"A" Wing			
Officers	5	12	..
Other Ranks	11	56	10
"B" Wing			
Officers	2	..	..
Other Ranks	7	11	1

The courses proved a success in every respect.

RIFLE ASSOCIATIONS

On April 1, 1921, there were in existence 87 military rifle associations with a membership of 15,295, and 225 civilian rifle associations with a membership of 11,158.

Rifle association as under were active during 1921:—

Military Rifle Associations and Civilian Rifle Associations	71 and 88
as compared with	
Military Rifle Associations and Civilian Rifle Associations during 1920.	34 and 65

Rifle associations were organized during the period under review:—

46 Military with a membership of	10,053
10 Civilian with a membership of	804

Rifle associations were disbanded during the season:—

Military Rifle Associations	10
Civilian Rifle Associations	53

On March 31, 1922, there were in existence 131 military rifle associations with a membership of 23,816 and 124 civilian rifle associations with a membership of 5,428.

The Dominion of Canada Prize, the conditions in regard to the competition for which are contained in Militia Orders Nos. 145 and 256 of 1921, was competed for by 17 civilian rifle associations as compared with 12 associations in 1920.

The Dominion of Canada and the different provincial rifle associations held their annual prize meetings in 1921.

RETURN OF CERTIFICATES GRANTED BETWEEN APRIL 1, 1921, AND MARCH 31, 1922.

OFFICERS

Name of School	Field Officers	Captains	Lieutenants	Quartermasters	Equitation	C.S.C.I. Grade "A"	Partial	"A" Wing		"B" Wing		Signals			Total
								Distinguished	Instructor	Distinguished	Instructor	Instructors	Grade "A"	Grade "B"	
Royal School of Artillery, Kingston, Ont	4	3	4		1										12
Royal School of Artillery, Quebec, P.Q	1														1
Royal School of Artillery, Winnipeg, Man.	3	4	3												10
Royal School of Cavalry, Toronto, Ont.	1	2	5												8
Royal School of Cavalry, St. Johns, P.Q	5	10	13		2										30
Royal School of Cavalry, Winnipeg, Man	3	13	10		1										27
Royal School of Cavalry, Calgary, Alta.	4	7	4		2										17
Royal School of Infantry, London, Ont	7	12	19												38
Royal School of Infantry, Toronto, Ont.	2	4	2												8
Royal School of Infantry, Montreal, P.Q	9	12	3												24
Royal School of Infantry, Quebec, P.Q	1	6	17												24
Royal School of Infantry, Halifax, N.S.	5	7	8												20
Royal School of Infantry, Winnipeg, Man.	5	3	1												9
Royal School of Infantry, Esquimalt, B.C.	7	3	3												13
Royal School of Machine Guns, Toronto.	4	4	3												11
Royal School of Machine Guns, Esquimalt	3	2	1												6
Canadian Warfare School								5	12	2					19
Provisional Schools of Cavalry	4	14	33												51
Provisional Schools of Engineers	1		2												3
Provisional Schools of Infantry	32	69	203	4											308
Provisional Schools of Machine Guns	5	12	64												81
Provisional Schools of Signalling													54	22	76
Provisional Schools of A.S.C.			1												1
Cadet Instructor's Course, London						52									52
Cadet Instructor's Course, Toronto		7				79									86
Cadet Instructor's Course, Pointe aux Trembles						29									29
Cadet Instructor's Course, Halifax, N.S.		2				15									17
Cadet Instructor's Course, Quebec						26									26
Cadet Instructor's Course, St. John, N.B.						30									30
Cadet Instructor's Course, Winnipeg						26									26
Cadet Instructor's Course, Calgary		4				33									37
Cadet Instructor's Course, Victoria						49									49
Cadet Instructor's Course, Beauceville						43									43
C.O.T.C. Candidates			5												5
Board of Examiners, Equitation					3										3
Total	106	200	404	4	9	382		5	12	2			54	22	
Grand total															1,200

RETURN OF CERTIFICATES GRANTED BETWEEN APRIL 1st, 1921, AND MARCH 31st, 1922

Non-Commissioned Officers and Men

Name of School	Troopers and Artillery									Physical Training		Signalling							"A" Wing		"B" Wing			Total
	Bombardiers	Corporals	Sergeants	S. Sergeants and Sergeant Majors	Buglers, Tprs. Gunners and Pres.	Gun Layers, Pos. Finders, etc.	Equitation	Caretakers	Field Work, Q.M.S. and Artificers	Instructors	Grade "B"	W.Os., N.C.Os. and Men				Cadets			Distinguished	Instructor	Distinguished	Instructor	Musketry	
												Grade "A" Yt.	Grade "B" Yt.	Grade "A" Lt.	Grade "B" Lt.	1st Year Semaphore	2nd Year Morse						
Royal School of Artillery, Kingston, Ont.	...	31	86	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	117
Royal School of Artillery, Quebec, P.Q.	...	...	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Royal School of Artillery, Halifax, N.S.	2	5	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Royal School of Artillery, Winnipeg, Man.	...	17	33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	50
Royal School of Artillery, Esquimalt, B.C.	...	4	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Royal School of Cavalry, Toronto, Ontn.	...	10	22	...	...	4	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Royal School of Cavalry, St. Johns, P.Q.	...	5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
Royal School of Cavalry, Winnipeg, Man.	...	12	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36
Royal School of Cavalry, Calgary, Alta.	...	14	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
Royal School of Infantry, London, Ont.	...	13	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	45
Royal School of Infantry, Toronto, Ont.	...	6	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
Royal School of Infantry, Montreal, P.Q.	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Royal School of Infantry, Quebec, P.Q.	...	1	20	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
Royal School of Infantry, Halifax, N.S.	...	22	17	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	45
Royal School of Infantry, Winnipeg, Man.	...	2	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
Royal School of Infantry, Victoria, B.C.	...	2	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Royal School of Machine Guns, Toronto	...	4	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
Royal School of Machine Guns, Esquimalt	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
Canadian Warfare School.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	73	...	16	7	...	96
Provisional Schools of Artillery	21	9	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35
Provisional Schools of Cavalry	...	60	85	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	145
Provisional Schools of Engineers.	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
Provisional Schools of Infantry	...	247	352	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	599
Provisional Schools of Machine Guns.	...	60	127	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	187
Provisional Schools of Signalling.	...	...	...	...	...	...	...	...	...	...	...	134	284	1	6	993	100	...	...	...	...	...	...	1,518
Provisional Schools of A.S.C.	...	...	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Normal and Public Schools	...	...	...	...	...	...	...	...	...	1	2,981	...	...	...	...	...	...	...	...	...	...	...	...	2,985
Partial Certificates	...	14	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
Board of Examiners, Equitation.	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Totals	23	544	939	2	10	...	4	...	...	4	2,981	134	284	1	6	993	100	...	73	...	16	7	...	
Grand total																								6,121

SUMMARY OF RESULTS OF C.O.T.C. EXAMINATIONS FOR CERTIFICATES "A" AND "B," HELD DURING 1921-22

Unit	Practical			Written		
	Number Applying	Number Attending	Number Successful	Number Withdrawn	Number Attending	Number Successful
University of Toronto	32	27	27	3	24	23
Queen's University	57	27	23		23	18
McGill's University	54	32	22	1	21	17
Loyola College	26	24	10	1	9	4
Laval University	87	54	54	3	51	7
N.S. Technical College	29	25	20	1	19	17
University of Mount Allison	48	39	39	4	35	12
University of New Brunswick	32	34	18	2	16	6
University of Manitoba	102	44	41	2	39	26
University of Saskatchewan	75	57	52	5	47	23
University of Alberta	95	62	28	1	27	20

(4) Cadet Services

Strength

In the report on this Directorate for the fiscal year ending March 31, 1921, reference was made to the marked progress of the Cadet Movement, when during the year 106 additional companies were organized, bringing the total enrolled strength to the formidable number of 81,493 cadets.

During the present year the educational authorities have continued to give cadet work their generous support, with the result that a further 118 companies have been authorized, bringing the total enrolled strength on March 31, 1922, to 101,431, organized into 777 Cadet Corps, consisting of 1,646 companies.

Below will be found a comparative statement of strength by Provinces:—

	March 31 1921	March 31 1922
Alberta	5,179	5,246
British Columbia	4,350	5,303
Manitoba	9,255	9,763
New Brunswick	1,210	1,603
Nova Scotia and Prince Edward Island	3,645	4,369
Ontario	26,217	29,492
Quebec	26,637	40,651
Saskatchewan	5,000	5,004
	81,493	101,431

Cadet Training

During the year much stress has been laid on the necessity for physical training, instruction in First Aid and signalling, and in these subjects very marked progress is noticeable.

The interest in rifle shooting continues to increase although the cadets are seriously handicapped through the wholly inadequate supply of .22" rifles available, there being only 3,565 distributed among all the cadets of the county. These rifles were first issued in 1913 and have become badly worn through service.

Cadet Camps

Cadet camps were held in all districts with a total attendance of 11,088, and, as a culmination of annual training proved of the utmost value. General Officers Commanding all Districts strongly recommended that the period of training in camp be extended from six to ten days. Reports also show that had funds been available the number of cadets attending would have been very largely increased.

Physical Training for School Teachers

The Department of Militia and Defence has continued to co-operate with the educational authorities of the different provinces in carrying out the provisions of the Strathcona Trust, under which all school teachers, before being granted diplomas, are required to qualify as Instructors in Physical Training. Classes were held at Normal School centres in all provinces attended by 5,033 teachers-in-training, of whom 2,981 qualified for Grade "B" Physical Training Certificates. Several of these classes are still in progress.

At the Annual Meeting of the Executive Council, Strathcona Trust, held in February, 1921, it was decided to introduce the "Syllabus of Physical Training for Schools, 1919" as the official text book to be used in all the Public Schools of Canada, and, in order that school teachers might be enabled to qualify as Instructors in the exercises contained therein, a large number of Warrant and Non-Commissioned Officers of the Permanent Force were out through a course of instruction in this syllabus, and arrangements have since been made with the educational authorities for the holding of refresher courses at various centres. Already very large numbers of teachers have qualified in the new syllabus which, to quote a letter received from the Inspector of Public Schools of the city of Ottawa, has led to increased interest in physical exercises by both teachers and pupils.

Cadet Corps Instructors

During the year 382 male school teachers attended courses of military instruction, and received certificates qualifying them as Lieutenants in the Corps of School Cadet Instructors. A large percentage of these gentlemen are now engaged in training the cadets of their respective schools.

Signalling

The Cadet Signalling classes, which were resumed last year for the first time since 1914, have continued to prove attractive, and 1,093 boys have passed qualifying examinations and received certificates.

The Corps of School Cadet Instructors

This Unit, which was organized in May, 1909, was reorganized on May 2, 1921, and now has an establishment of—20 Majors, 50 Captains, 500 Lieutenants, with an active strength of 26 Captains, and 242 Lieutenants.

Competitions

Imperial Challenge Shield (Senior and Junior)

In this competition, which is open to teams of boys from all parts of the British Empire and may be shot on any miniature rifle range between February 1st and June 30, in each year, 1,412 teams took part as against 1,389 teams in the previous year. In 1920 Canada was represented by 103 teams and in 1921 by 133. The results, however, owing to the unsatisfactory condition of the rifles in this country, were not encouraging, as only four senior and one junior team received prizes.

To encourage Canadian teams to enter for this competition, His Excellency the Governor General has generously donated a valuable Challenge Cup to be awarded to the school which makes the greatest all-round effort and shows the highest all-round training by entering successfully the largest number of teams in the competition. The cup this year was won by No. 130 Rothesay Collegiate School Cadet Corps, St. John, N.B., with No. 570 York Rangers Cadet Corps, Toronto, next in order, followed by the Peterborough Collegiate Institute Cadet Corps.

Through the generosity of the members of certain School Boards, a number of match rifles have been purchased, and it is confidently believed Canadian teams will make a more favourable showing in this competition next year.

Canadian Rifle League Competitions.

In the Miniature Rifle Matches 80 cadet teams took part, Section (*a*) being won by the Colchester Academy, Truro, N.S., Section (*b*) by the Toronto Normal Model School, and the Junior Competition by Ross School, Moose Jaw, Sask.

In the Gallery Practice series, senior, Virden Collegiate Institute, Virden, Man., took first place, with the Academie de La Salle, Three Rivers, P.Q., leading in the junior series.

The Canadian Rifle League matches shot with the Service rifle brought out 20 teams, the senior event being won by the University Military School, Victoria, B.C., and the junior by the Calgary High School (1st team).

Dominion of Canada Rifle Association

The first prize meeting of the Dominion of Canada Rifle Association held at the Connaught Rifle Range, Ottawa, in August, 1921, was attended by 453 competitors, of whom 209 were tyros and 43 cadets. The young shots did remarkably well throughout the meeting, coming into every prize list in good numbers.

The 43 cadets attending the meeting received in prize money the sum of $541, a most creditable showing.

The Governor General's Challenge Shield

This shield was presented by His Excellency Earl Grey, former Governor General of Canada, to be awarded to the province which can show on May 24 each year the greatest number of enrolled cadets in proportion to the school attendance. The trophy was again won by the province of Manitoba to be held for the year by No. 538 St. John's College School Cadet Battalion, Winnipeg, which was found to be the most proficient in drill and musketry in the province.

(5) Historical Section

Classification of Historical Documents

During the past year progress has been made in making accessible the mass of information pertaining to Canadian military activities during the war. This material is being sorted and all personal documents passed to the Directorate of Records while historical matter is retained and will be referenced chronologically and by units. Since June 1, 1921, when this Directorate was reorganized over thirty-five tons of documents from overseas have been classified.

Compilation of a Historical Account of the Military Forces of Canada in the Great War

A general survey has been made of the part played by the Canadian forces in the war, and steps taken to collate all available information so that properly substantiated facts may be ready to hand and arranged in convenient form for reference. This is being done by means of diagrams, charts, maps of operations, abstracts of diaries, and skeleton histories of units, all being linked together by a detailed subject index.

A history of the Medical Services is now nearing completion and work has been continued on the story of the Canadian Nursing Services.

Replies to Inquiries for Historical Information

Many notes and replies to queries have been furnished for the use of Members of Parliament as well as to historians of Canadian overseas units and private individuals. Close touch has been maintained with the Record Office of the Department and information has been supplied regarding locations and engagements of units of the Overseas Military Forces of Canada.

REPORT OF THE ADJUTANT-GENERAL FOR THE FISCAL YEAR ENDING MARCH 31, 1922

On March 31, 1921, the date of the last annual report of the Department of Militia and Defence, the Adjutant General's Branch consisted of the following Directorates, each Directorate being sub-divided into a number of sections to facilitate the distribution and performance of its various duties:—

The Directorate of Organization and Personal Services.
The Directorate of Medical Services.
The Directorate of the Judge-Advocate-General.
The Directorate of Records.

During the year covered by the previous report, the appointment of Paymaster-General was replaced by that of Chief Paymaster, and this latter appointment was subsequently abolished and the duties thereof were assumed by the Director of Pay Services. In June, 1921, the Directorate of Pay Services became a part of the Adjutant-General's Branch in so far as administrative and disciplinary matters are concerned, but continued under the Deputy Minister for financial matters generally.

The reports of the various Directorates now comprising the Adjutant-General's Branch follow:—

(1) Directorate of Organization and Personal Services

ORGANIZATION

Permanent Force

The establishment of an Instructional Cadre (Cavalry, Signals, Infantry, Machine Guns, including Physical Training Instructors), has been authorized, which provides for a total of 150 Instructors (Warrant Officers and Non-Commissioned Officers).

These Instructors are carried supernumerary to, but within the establishment of, their respective Permanent Force units.

The Instructional Cadre is administered by the Commandant, Canadian Small Arms School.

A Canadian Small Arms School has been organized in place of the disbanded Canadian Warfare School.

The Canadian Small Arms School consists of a headquarters and three Wings, as under:—

Headquarters—

1 Commandant,
1 Adjutant,
1 Quartermaster,
1 Regimental Sergeant-Major,
1 Quartermaster-Sergeant,
4 Clerks.

"A" Wing (Rifle and Light Gun)—

1 Officer Commanding.

"B" Wing (Machine Gun)—

1 Officer Commanding.

"C" Wing (Light Trench Mortar and Bombing)—

1 Officer Commanding.
1 Engineer Officer.

The personnel of the Canadian Small Arms School has been provided from the former Canadian Warfare School, Instructional Cadre and Permanent Force Units.

Royal Schools of Artillery have been reorganized as follows:—

Quebec, P.Q.—Coast Defence and Anti-Aircraft.

Halifax, N.S.—Coast Defence and Anti-Aircraft.

Kingston, Ont.—(Mobile Artillery) Field, Heavy and Siege.

Winnipeg—(Mobile Artillery) Field, Heavy and Siege.

Esquimalt—Coast Defence and Anti-Aircraft.

The following changes in designation of Units have been authorized:—

Old Designation	*New Designation*
Canadian Permanent Signal Corps.	The Royal Canadian Corps of Signals.
The 22nd Regiment.	Royal 22nd Regiment.
Canadian Permanent Machine Gun Brigade.	The Royal Canadian Machine Gun Brigade.

The following table shows the authorized establishments and limited establishments, in personnel, of units of the Permanent Force.

The strengths of the respective Units are restricted to the numbers laid down in the Limited Establishments.

PERMANENT FORCE UNITS

Unit	Authorized Establishment			Limited Establishment			Actual Strength		
	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total
Royal Canadian Dragoons	28	516	544	20	272	292	17	281	298
Lord Strathcona's Horse (R.C.)	28	495	523	20	217	237	15	208	223
Royal Canadian Artillery	66	1,025	1,091	66	686	752	57	688	745
Royal Canadian Engineers	48	360	408	38	246	284	36	238	274
Royal Canadian Corps of Signals	5	27	32	5	26	31	5	26	31
Royal Canadian Regiment	36	921	957	36	471	507	28	458	486
Princess Patricia's Canadian Light Infantry	29	690	719	25	269	294	20	268	288
Royal 22nd Regiment	14	398	412	12	190	202	10	189	199
Royal Canadian Machine Gun Brigade	47	480	527	25	143	168	22	138	160
Royal Canadian Army Service Corps	33	412	445	33	303	336	32	297	329
Royal Canadian Army Medical Corps	43	101	144	33	74	107	31	74	105
Royal Canadian Ordnance Corps	52	700	732	32	523	555	30	507	537
Royal Canadian Army Veterinary Corps	7	23	30	7	7	14	7	7	14
Royal Canadian Army Pay Corps	40	100	140	26	70	96	20	71	91
Corps of Military Staff Clerks	32	199	231	8	194	202	8	185	193
Canadian Warfare School	3	2	5	3	2	5	3	2	5
Totals	491	6,449	6,940	389	3,693	4,082	341	3,637	3,978

NOTE.—Officers seconded from their units are not included in the above statement.

Recruiting.—Enlistments for the Permanent Force have only been permitted to fill vacancies which have occurred from time to time within the Limited Establishments.

Applications for enlistment continue to be received, but have to be refused in practically every case owing to there being no vacancies.

Non-Permanent Active Militia

The following changes in organization have been effected:—

Cavalry.—The 2nd Regiment (13th C.M.R. Bn. C.E.F.) The Alberta Mounted Rifles has been converted from a reserve into an active unit.

Artillery.—The organization of the following units, which upon reorganization of the Artillery was held in abeyance, has now been authorized—

Headquarters, 19th Brigade, C.F.A.
53rd Battery, C.F.A.
79th " "
87th " "

Signals.—Each Signal Battalion has been reduced by one company, and now consists of a battalion headquarters and two companies.

Additional signal battalions have been organized as follows:—

10th Signal Battalion in Military District No. 10
12th Signal Battalion in Military District No. 12

Infantry.—The following have been converted into Highland (Kilted) Units and redesignated:—

The Stormont and Glengarry Regiment—
New designation "The Stormont, Dundas and Glengarry Highlanders."
1st Bn. (10th Bn. C.E.F.) The Calgary Regiment—
New designation "1st Bn. (10th Bn. C.E.F.) Calgary Highlanders, The Calgary Regiment."
The Mississauga Regiment.
New designation "The Toronto Scottish Regiment"

The 2nd Battalion (31st Bn. C.E.F.) The Alberta Regiment, and the 2nd Battalion (35th Bn. C.E.F.) The York Rangers, formerly reserve units, are now organized as active battalions.

Canadian Machine Gun Corps.—The organization of the 2nd Motor Machine Gun Brigade at Winnipeg instead of at Vancouver, has been authorized.

Canadian Army Service Corps.—The Canadian Army Service Corps has been reorganized into Divisional Trains, each consisting of a Headquarters and four companies.

Provision is made for a Divisional Train in each Military District with the exception that two are allotted to Military District No. 2, and one between Military Districts No. 6 and 7.

As an interim arrangement organization has been authorized to be proceeded with to the extent of the Divisional Train Headquarters and the reorganization of the existing 21 Companies C.A.S.C. as companies of the respective Divisional Trains.

Canadian Army Dental Corps.—The Canadian Army Dental Corps has been authorized as a corps of the Non-Permanent Active Militia, and consists of a General List and 11 Detachments (one in each Military District).

Canadian Chaplain Service.—A Canadian Chaplain Service has been authorized as a unit of the Non-Permanent Active Militia and consists of a General List with an establishment of 200 Officers.

Canadian Officers Training Corps.—Upon reorganization the following changes have been made in the composition of the undermentioned Contingents of the Canadian Officers' Training Corps:—

Contingent C.O.T.C.	Old Organization	Present Organization
Toronto University	Battalion Staff and 12 Coys.	Battalion Staff and 4 Coys.
Queens' University	Battalion Staff and 4 Coys.	Battalion Staff and 2 Coys.
McGill University	Battalion Staff and 8 Coys.	Battalion Staff and 3 Coys.
Manitoba University	Battalion Staff and 8 Coys.	Battalion Staff and 4 Coys.
Saskatchewan University	Battalion Staff and 3 Coys.	Battalion Staff and 2 Coys.
Alberta University	One Coy.	Battalion Staff and 4 Coys.

Peace Establishments

Peace Establishments of the Non-Permanent Active Militia, were revised and promulgated in the Appendix to General Order No. 242 of 1921.

Peace Establishments for the following units, which were not included in the above mentioned publication, have also been authorized and published in General Orders—

10th Fortress Company, Canadian Engineers (Halifax N.S.).
A Divisional Train, Canadian Army Service Corps.

Localization

The localization of the respective units of the Non-Permanent Active Militia, upon reorganization, which in each case is published in General Orders, has been practically completed.

Regimental Institutes

Revised Rules and Regulations for the Management of Garrison, Station and Regimental Canteens, and other branches of Regimental Institutes, including Messes of The Permanent and Non-Permanent Active Militia have been approved and published.

Canadian Expeditionary Force

There still remain outstanding a number of questions, including matters concerning personnel, which are being disposed of at Militia and District Headquarters.

Absentees from the C.E.F. continue to report themselves with a view to receiving discharge certificates and war service gratuity. Each case is considered independently and decided in accordance with the regulations regarding the disposal of deserters. It is anticipated that cases of this nature will continue to come forward for some time.

Co-ordination with the Department of Soldiers Civil Re-Establishment

The Department of Militia and Defence has maintained the closest possible co-ordination with the above Department, in dealing with ex-soldiers of the C.E.F. whose cases are referred to Militia Headquarters by the men themselves, or through the agency of the several War Veteran Organizations.

Ceremonial

Arrangements for the supply of Guards of Honour and Escorts were made on the following occasions: Opening of the First Session of the Fourteenth Parliament of Canada; Drawing Room held by His Excellency the Governor General on March 11, 1922.

Regimental Crests and Badges

During the year action has been continued to complete the work of authorizing the Regimental Badges and Crests for all Units of the Non-Permanent Active Militia.

Discipline

All cases of discipline during the last year have been dealt with by this Directorate in co-operation with the Judge Advocate-General.

Military Funerals

All matters concerning Military Funerals have been dealt with by this Directorate.

Dress

Action has been taken to publish Orders concerning the Dress of the Active Militia, both Permanent and Non-Permanent, but as no report has been received as yet from the Post-Bellum Committee of the War Office which is considering the whole question of Dress, no action has been taken to revise the Dress Regulations.

Royal Military College

A number of changes have taken place at the Royal Military College, as will be seen by copy of the Commandant's Annual Report, marked Appendix F.

The composition of the inspecting Board which was known as "The Board of Visitors" has been changed and this board is now named "The Advisory Board". The Report of the Advisory Board for the year 1921-22 forms Appendix G of this report.

PERSONAL SERVICES

The progress made in obtaining the services of suitable officers to fill the establishments of units of the Non-Permanent Active Militia has been very satisfactory, and there now remain very few of the former units to complete their reorganization. The large number of officers qualified by reason of active service has proved to be a valuable asset in obtaining the personnel for the reorganized units.

The regulations adopted for the appointment of new personnel on the reorganization of units have been generally adhered to throughout and have produced good results. The essentials of these regulations provided for the following:—

(*a*) Commanding Officers, preferably with overseas service, were selected and gazetted following a conference of officers of each unit.

(*b*) The new Commanding Officer was then charged with the preparation of a new slate of officers and the submission of recommendations for the disposal of former personnel.

(*c*) Officers who were unable to continue taking an active part in the affairs of their Corps were, if qualified, given the option of being placed on the Corps Reserve, The Reserve of Officers, or the Retired List.

Of the former and larger units in existence prior to reorganization of the Militia, two regiments of Cavalry and four regiments of Infantry remain to be completed, and progress in the reorganization of these units has been held in abeyance for various reasons justifying the delayed action in each case.

The following is a statement of units, by the various arms of the service, to which new cadres of officers have been appointed on reorganization during the year under report:—

Cavalry—

11th Hussars.
12th Manitoba Dragoons.
14th Canadian Light Horse.
The Border Horse.
The Manitoba Horse.
The P. E. I. Light Horse.
The Ontario Mounted Rifles.
The King's Nova Scotia Mounted Rifles.
The Manitoba Mounted Rifles.
2nd Regiment The Alberta Mounted Rifles.

Artillery—

5th 7th, 27 Batteries } 2nd Brigade, C.F.A.
66th Battery }
7th Brigade, C.F.A. (Headquarters).
10th Battery, 8th Brigade.
3rd Battery, 8th Brigade.
52nd Battery, 14th Brigade.
6th, 36th, 83rd, 86th Batteries, 16th Brigade.
2nd, 8th, 14th Siege Batteries and Headquarters, 1st P.E.I. Heavy Brigade.
3rd, 7th, 10 Siege Batteries } 2nd Heavy Brigade.
1st Heavy Battery }
Headquarters }
Nos. 1, 2, 3, 4, Companies } 1st (Halifax) Regt., C.G.A.
9th Siege Battery }
Headquarters }

Canadian Engineers—

2nd Divisional Engineers.
3rd Divisional Engineers.
5th Divisional Engineers.
District Engineers, M.D. No. 11.
District Engineers, M.D. No. 12.
2nd Field Troop, M.D. No. 10.
6th Field Troop, M.D. No. 5.
6th, 8th, 15th Field Companies.
4th Field Troop.

Canadian Corps of Signals—

Headquarters, 12th Signal Battalion.
2nd Signal Company, 2nd Signal Battalion.
3rd Signal Company, 3rd Signal Battalion.
5th Signal Company, Unattached.
10th Signal Company, 10th Signal Battalion.
13th Signal Company, Unattached.
17th Signal Company, 10th Signal Battalion.
4th Signal Troop, Unattached.

Corps of Guides—

No. 2 Cyclist Company.
No. 4 Cyclist Company.
No. 5 Cyclist Company.
No. 13 Cyclist Company.

Canadian Officers' Training Corps—

Western University Contingent.
Manitoba University Contingent.
University of Saskatchewan Contingent.

Infantry—

The Alberta Regiment (1st Battalion).
The Alberta Regiment (2nd Battlaion).
The Calgary Regiment (1st Battalion).
Les Franc-Tireurs du Saguenay.
The Haldimand Rifles.
The Lake Superior Regiment.
The Middlesex Light Infantry.
The North British Columbia Regiment.
The North Saskatchewan Regiment (1st Battalion).
The North Saskatchewan Regiment (2nd Battalion).
The North Saskatchewan Regiment (3rd Battalion).
The North Saskatchewan Regiment (4th Battalion).
The Kenora Light Infantry.
The Rocky Mountain Rangers.
Le Regiment de Chateaugnay.
The South Saskatchewan Regiment (1st Battalion).
The South Saskatchewan Regiment (2nd Battalion).
The South Saskatchewan Regiment (3rd Battalion).
The South Saskatchewan Regiment (4th Battalion).
The South Saskatchewan Regiment (5th Battalion).
The Three Rivers Regiment.
The West Toronto Regiment.
The Algonquin Rifles.
The York Rangers (2nd Battalion).
The Lincoln Regiment.
The Lanark and Renfrew Regiment.
The Annapolis Regiment.

Canadian Army Service Corps—

Headquarters, 10th Divisional Train.
Headquarters, 12th Divisional Train.
No. 2 Company, 4th Divisional Train.
No. 3 Company, 4th Divisional Train.
No. 2 Company, 6th Divisional Train.
No. 2 Company, 2nd Divisional Train.
No. 2 Company, 1st Divisional Train.
No. 2 Company, 5th Divisional Train.
No. 2 Company, 13th Divisional Train.

Canadian Army Medical Corps—

General List, Canadian Army Medical Corps.
General Hospitals, Nos. 2, 3, 4, 6 and 7.
Stationary Hospitals, Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10 and 11.
Casualty Clearing Stations, Nos. 1, 2, 3, 4, 5, 6 and 7.
Field Ambulances, Nos. 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 25, 26, 28, 30, 31, 32 and 33.
Cavalry Field Ambulances, Nos. 7, 17, 21, 24, 27 and 34.
Sanitary Sections, Nos. 1, 3, 4, 5, 6, 8, 9 and 10.
Motor Ambulance Convoy, Nos. 1 and 3.
Reserve X-Ray Unit.

Canadian Army Veterinary Corps—

General List, Canadian Army Veterinary Corps.

Canadian Chaplain Service—

General List, Canadian Chaplain Service.

Canadian Ordnance Corps (Non-Permanent)—

Detachments, 5, 6, 7 and 10.

Corps of School Cadet Instructors—

General List, Corps of School Cadet Instructors (26 Captains and 247 Lieutenants).

Reserve Units, as provided under the general scheme for the reorganization of the Canadian Militia, are now in course of organization, and when completed will absorb the officers now carried on "Corps Reserves" into authorized establishments now provided for such Reserves.

The General Reserve of Officers, Canadian Militia, which affords another source of supply of qualified officers for all arms of the service, has greatly expanded by the absorption of the officers previously carried on the Reserve of Officers, Canadian Expeditionary Force, who have not been appointed to units of the Active Militia on reorganization. Officers carried on this list, although not actively employed, remain available for any military duties required of them and may be reappointed to fill vacancies as they arise in any of the peace establishments.

The following is a statement indicating the number of officers at present appointed to the Reserve of Officers, showing the various arms of the service for which they are qualified:—

Reserve of Officers, Canadian Militia

Cavalry	255
Mounted Rifles	130
Artillery	692
Engineers	953
Corps of Guides	30
Infantry	4,278
Machine Gun Corps	221
Canadian Army Service Corps	202
Canadian Army Medical Corps	902
Canadian Army Dental Corps	200
Canadian Army Veterinary Corps	70
Canadian Army Pay Corps	154
Railway Corps Forestry Corps Pioneers	506
Corps of School Cadet Instructors	70
Chaplains	400
Quartermasters	152
Officer Clerks Ordnance and Postal Services	22
Nursing Sisters	1,600
	10,837

Number of Appointments to Non-Permanent Active Militia Units

Owing to the progress of reorganization and the numerous changes involved thereby, the number of appointments to the Non-Permanent Active Militia during the year under review has been large, details of which are given in the following:—

Cavalry	270
Artillery	193
Engineers	27
Corps of Guides	11
Canadian Officers Training Corps	84
Infantry	996
Canadian Machine Gun Corps	117
Canadian Signal Corps	86
Canadian Army Service Corps	22
Army Medical Corps	75
Nursing Sisters, A.M.C.	17
Canadian Army Dental Corps	
Canadian Army Veterinary Corps	20
Canadian Postal Corps	3
Canadian Ordnance Corps (Non-Permanent)	3
Corps of School Cadet Instructors	64
Canadian Militia (General List)	48
*Temporary appointments (General List)	233
Canadian Chaplain Service	
Reserve of Officers	2,246
Total	4,515

* Gentlemen promoted to commissioned rank in the C.E.F. who did not hold commissions in the Active Militia at the time of such promotions, were granted temporary commissions in the Active Militia.

Gazettes dealing with all appointments referred to in the above were prepared weekly and officially authorized through the *Canada Gazette*.

Document Commissions

The number of document commissions prepared and issued to officers of the Active Militia during the year covered by this report was 2,042.

Document Warrants

Thirty-three warrants were also issued to qualified non-commissioned officers of the Active Militia, including the Permanent Force, who were selected for promotion to Warrant Rank, Class 1, to fill vacancies which occurred during the year.

Resignations and Retirements, Permanent Force

Further reductions were made in the officer personnel of the Permanent Force, and the following statement indicates the number of officers from each unit who relinquished permanent military employment either by resignation or on retirement to pension during the year:—

Royal Canadian Dragoons	1
Royal Canadian Artillery	3
Royal Canadian Engineers	1
The Royal Canadian Regiment	2
Royal 22nd Regiment	1
Royal Canadian Machine Gun Brigade	4
Royal Canadian Army Medical Corps	3
Royal Canadian Ordnance Corps	2
Royal Canadian Army Pay Corps	9
Corps of Military Staff Clerks	11
Not borne on Regimental Establishment	8
Cadet Services	1
Total	46

In nearly all cases the officers concerned were within the age limit for their respective ranks, and were, therefore, placed on the Reserve of Officers so as to have them available for further military duty should any future occasion for such arise.

Those beyond the age limit or medically unfit for further service were placed on the Retired List.

Militia List

The many and constant changes in the personnel, establishments, and localization of units, consequent upon the progress of complete reorganization caused further delay in the publication of a Militia List, which could not be satisfactorily arranged for until such time as the necessary details were decided and more definitely established.

This book of reference, however, is urgently needed in the various Military Districts throughout the Dominion, and will be ready for printing and subsequent production within a short period. In the interests of economy it was not considered that any expenditure for this purpose should be considered until full details as to the new personnel of all reorganized Staffs, Brigades, Units and Departmental Services were available.

Canadian Expeditionary Force

The staff dealing with the questions arising from the services of officers while with the Canadian Expeditionary Forces has been reduced to a minimum, but must be available as long as claims, enquiries and correspondence continue from Imperial sources, departments of the Federal and Provincial Governments, legal and commercial corporations, and the individual officers.

(2) The Directorate of Medical Services

Royal Canadian Army Medical Corps

During the fiscal year ending March 31, 1922, this Directorate took over work of a medical nature in other Branches at Militia Headquarters and by so doing it has been possible to show an annual saving of public funds to the extent of $10,226. These duties are as follows:—

(*a*) By June 1, 1921, the work of compiling data for the Medical History of the War, under the Officer i/c Historical Section, was taken over by an officer of this Directorate. This work had been in charge of a senior Canadian Army Medical Corps officer on a C.E.F., basis.

(*b*) During the month of March, upon the demobilization of the C.A.M.C. Officer compiling Medical Statistics of the diseases of the Great War (Hollerith System), the D.G.M.S. Directorate took over this work, and an officer was detailed for duty on a part-time basis under the Director of Records.

(*c*) The Medical Representative of the Permanent Pensions and Claims Board, a C.A.M.C. officer, was replaced by an R.C.A.M.C. officer of the staff of the Medical Services Directorate.

The reduced establishment of the R.C.A.M.C. has considerably interfered with training, particularly in those Stations where it has not been possible to open Station Hospitals for the treatment of Permanent Force troops, such as London, Toronto, Kingston, Montreal and Calgary. In these Stations, however, lectures in First Aid, Sanitation, Personal Hygiene, and exercises in Field Training have been carried out. In Halifax, Quebec, Winnipeg, St. John's, P.Q., and Esquimalt, where there are well equipped Station Hospitals and sufficient personnel is available, full Courses of Training have been carried out and examinations held.

resulting in 8 men qualifying as Hospital Orderlies, 11 others for the rank of Corporal, and 2 as N.C.O. dispensers. During the winter, 1921-22, 8 R.C.A.M.C. officers, (5 Majors and 3 Captains), prepared themselves for promotion examinations. These examinations were not to be held until April, 1922, and, therefore, will be reported upon later. The practical test in map reading and tactical medical problems in the field was, however, held in the month of March, when the officers under examination displayed a good knowledge of the tactical employment of the Medical Services with other troops. In connection with the examination for officers of the R.C.A.M.C., it might be stated that two new subjects have been added to the syllabus, viz., D.iii, Military History, and D.v., an Essay, both being altered to be made applicable to the Canadian Medical Services.

Canadian Army Medical Corps

The reorganization of the C.A.M.C. (Non-permanent) during the year 1921-22 has made good progress and, in the great majority of Medical Units a good slate of officers has been recommended for appointment. However, in some Districts, notably Military Districts 5, 7, 10 and 12, the re-organization of Active Militia Units has not met with the same success as in other parts of Canada and, in some instances, Units have only Officers Commanding appointed whilst, in others, no official re-organization has yet taken place. In all, there have been appointed to the Medical Units of the Active Militia 435 Medical Officers, 33 Quartermasters and 13 Nursing Sisters; while 34 Medical Officers and 4 Quartermasters have been placed on the Reserves of these Units. In addition, there have been attached to other Units 190 Medical Officers from the General List, C.A.M.C., and 20 officers of the old Regimental List of Medical Officers have been retained on the strength of their Units.

During the past year, the Militia Medical Units have suffered with the rest of the Active Militia in the matter of training owing to the necessity for economy. During the summer of 1921, only two Units were authorized to train in Camp, viz., No. 2 Field Ambulance and No. 2 Casualty Clearing Station, both in Military District No. 2. These Units were in charge of the Camp Hospital, Niagara, during successive Camps in June, and trained approximately the number laid down by the establishment of a Camp Hospital, i.e., 4 officers and 51 other ranks. The personnel was mostly engaged in hospital duties, nevertheless useful training was carried out in Field Sanitation and medical tactical problems, in conjunction with the training of troops in Camp. In other Districts, where there was not sufficient Permanent Force medical personnel for the care of troops in Camp, a few C.A.M.C. officers and other ranks were called up for duty in the improvised Camp Hospitals.

Although it was fully expected to close the Manitoba Military Hospital as a non-permanent unit by July 31, and to have the remaining C.E.F. and D.S.C.R. patients cared for by the R.C.A.M.C. personnel in Tuxedo Barracks, this was found to be impossible and the Hospital has been continued under special authority. In this Hospital, on April 1, 1921, there were 23 Overseas Patients on the strength of Militia and Defence and 132 D.S.C.R. in-patients, and 50 D.S.C.R. patients attending. There were on the strength and doing duty, 6 Medical Officers, 1 Quartermaster, 1 Adjutant, 14 Nursing Sisters and 59 Other Ranks. By 31st March, 1922, the number of patients in hospital comprised: Permanent Force, 4; Non-Permanent Active Militia (General List), 1; D.S.C.R. 119; and the personnel in attendance has been reduced to 4 Medical Officers, 1 Q.M., 10 Nursing Sisters, and 45 Other Ranks, showing a reduction during the year of two Medical Officers, 1 Adjutant, 4 Nursing Sisters, and 14 Other Ranks.

The health of the troops of the Permanent Force during the year has been good. There were no epidemics of infectious disease worthy of note, but, during the winter months, an outbreak of a mild form of influenza occurred in one or two Stations, particularly at Esquimalt, where it was found necessary to admit some 40 patients. No deaths occurred and the epidemic was soon under control.

In all, there were 12 deaths among members of the Permanent Force during the year and one from the Navy. The cause of death was as follows:—

Erysipelas	1
Pneumonia	3
T. B. Lung	2
Diabetes	1
Carcinoma of Stomach	1
V. D. H.	1
Abscess of Lung	1
Multiple Fractures	1
Fracture, base of skull	1
Myelitis Acute	1 (Naval)

The percentage of deaths in total treated was 0·4.

Medical Stores

During the fiscal year ending March 31, 1922, approximately $8,000 has been expended in the purchase of medical supplies for use in Permanent Force Hospitals and for Militia Camps. The sale of surplus medical supplies has continued; approximately $10,000 worth having been sold for cash and $65,000 worth transferred to other Departments of the Government, without payment (in accordance with Order in Council P.C. 2150, dated June 25, 1921), making a total of $75,000 worth disposed of. There is still a considerable amount of surplus stores available but sales are slow owing to the market being flooded. It is, however, expected that other Government Departments will, during the next two or three months, take over a large percentage of the balance on hand. During this period, there were 410 shipments received into Medical Stores, including the final returns of surplus war stores from Districts, for which vouchers were received, and all entries made in the ledgers. There were 819 issues made, of which 596 were to District Medical Stores, Camps, Dispensaries, etc., and 223 sales to the public and transfers to other Departments. A large amount of the Field Equipment returned from England and Districts in Canada was repaired, replenished and sent out to District Medical Stores as mobilization equipment. A great number of the containers for this equipment required repairs to the iron bindings, fittings, etc., which occupied the full time of one mechanic.

During the month of March, the civilian druggist who had been employed for several years during the war was replaced by the enlistment of a qualified dispenser with the rank of Staff-Sergeant. By thus securing the services of a qualified druggist, it will be possible to continue the manufacturing of certain lines of preparations, thus saving from 100 to 150 per cent on these items.

Canadian Army Medical Museum

During the year, good progress has been made in the work of completing the Army Medical Museum. During this period, the following specimens were mounted, catalogued, and the containers stencilled: 68 moist specimens in square jars and 45 bone specimens on brass standards under glass, while 28 specimens were repaired.

Including the above, there are now in the Museum 334 gross and 120 microscopic specimens.

One hundred and forty-nine 8-inch by 10-inch negatives of specimens for the purpose of the Descriptive Catalogue were made and, in addition, fifteen coloured enlargements were made from as many negatives and nine 8-inch by 10-inch prints were coloured for exhibition purposes.

Two exhibits were held during the year—one at the Canadian Medical Association Meeting in Halifax, July 5-8, 1921, at which a large and representative exhibit was much appreciated by the medical profession. The cost of transportation of the

specimens and the travelling expenses of the Curator were paid by the local Halifax Committee, Canadian Medical Association. The sections of the C.A.M. Museum presented were: Moist Pathological Specimens; Bone Specimens; Plastic Surgery; Orthopædic Surgery; War Medicine; Field Sanitation; Army Medical Arrangements.

On October 12-15, 1921, a second exhibit was held upon the occasion of the McGill Centenary. On both these occasions, the war exhibit was the basis of a symposium by the exhibitors, which was made a feature of the programme of the meeting.

During the year, six conferences of the Editorial and Consultant Boards were held; two in Montreal, two in Ottawa, one in Toronto, and one in Halifax.

Progress of the various sections of the Descriptive Catalogue to date is as follows:—

1. *Sections completed.*—Field Sanitation; Traumatic Lesions of the Eye; Wound Irrigation; Blood Transfusion; Renal Medicine; Technique of Preparation.

2. *Progressing to immediate completion.*—Orthopædic Surgery; Facial Surgery; War Lesions of Soft Tissues; Diseases and Injuries of Bone; Chest Disorders.

3. *In course of Preparation.*—Cardio-vascular Disease; Surgery of Chest; War Injuries of Ear, Nose and Throat; X-rays of War Injuries.

It is hoped to have all material for the Descriptive Catalogue ready for the printer by the end of August.

Two C.A.M.C. Officers—Major-General J. T. Fotheringham, C.M.G., and Colonel C. A. Peters, D.S.O.—attended the Annual Meeting of the Association of Military Surgeons of the United States, held in Boston, on June 2, 1921.

Sir Andrew Macphail, Kt. O.B.E., B.A., M.D., C.M., LL.D., under authority of Order in Council P.C. 3752 of October 7, 1921, was authorized to write the Medical History of the Great War and was to work under the direction of the Chief of the General Staff and Officer in charge of the Historical Section. All medical records were put at his disposal and by the end of the year the material for one volume was well under way.

(3) Directorate of the Judge Advocate-General

During the year ending March 31, 1922, 74 courts-martial were held in Canada, all of which were district courts-martial. This is a decrease of over 50 per cent compared with the number of courts-martial held during the preceding year, and indicates a consequent improvement in discipline. On the other hand, however, the numerous amendments which were made to the Rules of Procedure and the Army Act in the latter part of 1920 were, in a number of instances, not fully understood by officers who from time to time were members of courts-martial, or by officers responsible for the administration of military law in the various districts. The result was that a very large number of these courts-martial proceedings had to be returned for correction of technical irregularities, and, in some cases, for the quashing of the finding and sentences.

Upon the Permanent Active Militia being reorganized, the need of affording instruction in military law and regulations relative to the maintenance of discipline was apparent, this being due to the fact that, during the period of the war, this branch of administration had been left to the care of officers specially appointed for that purpose, and consequently a certain proportion of officers appointed to the Permanent Force after the war were not sufficiently experienced in this branch of work.

Pursuant to instructions received from the Militia Council, the Judge Advocate-General prepared a short series of lectures designed to cover those questions of military

law and the maintenance of discipline which were most constantly arising, and dealing also with the more important points in court-martial procedure. The Judge Advocate-General also carried out in Military Districts one to five, short courses of instruction covering four days in each District. An immediate improvement in these branches of administration was noticed.

The number of leases and agreements prepared in the Judge Advocate-General's office exceeded somewhat the number for the preceding year. It might be observed that, as the result of the abolition of the old printed forms of leases and agreements which were previously used, it is now necessary to draft a special lease or agreement covering each particular case, thereby minimizing, to a great extent, the number of claims which were formerly made on account of ambiguous clauses embodied in the old forms, the interpretation of which was not at all clear.

Consequent upon the decision to amalgamate the Department of Naval Service, the Department of Militia and Defence, and the Air Board under one head and create a new Department of National Defence, the duties of the Judge Advocate-General were considerably increased owing to his being responsible for the preliminary work of drafting the necessary legislation and memoranda thereon, and the numerous references which had to be made to the Department of Justice and the Parliamentary Counsel.

During the year a considerable number of reports to Privy Council were either drafted in the office of the Judge Advocate-General, or referred to him for opinions or amendments if the same were necessary. A considerable number of matters had to be referred to the Department of Justice during the year, the necessary correspondence being prepared by this Directorate. The number of requests for opinions and memoranda on questions arising out of the Pay and Allowance Regulations, King's Regulations, etc., was, approximately, the same as in the preceding year.

In addition to his duties as Judge Advocate-General, this officer is a member of the Pensions and Claims Board, which administers the Militia Pension Act. The number of retirements to pension during the year under review due to reduction in Establishment of the Permanent Force, necessitated the preparation of a large number of memoranda and opinions, for which the Judge Advocate-General was responsible.

(4) Directorate of Records

Owing to the practical completion of certain branches of the work performed by the Directorate of Records, the total output for such branches indicates a decrease, but on the whole, the volume of work for the entire Directorate shows no marked fluctuation. A brief summary of the work performed by various sections is as follows:—

(a) *Honours and Awards.*—The total output of this Section shows a decided increase. The work on 1914-15 Stars, King's Certificates on Discharge, War Service Badges, Memorial Crosses, Certificates of 'Mentions,' and Memorial Scrolls has been practically completed and the output for the fiscal year is, therefore, less than that of last. Satisfactory progress has been made with the issue of Memorial Plaques, British War and Victory Medals.

Medals and decorations	583
1914-15 stars	8,095
King's certificates on discharge	566
War service badges	2,319
Memorial crosses	4,860
Canadian medals	185
Certificates for 'Mentions'	1,534
Memorial scrolls	22,916
Plaques	40,530
British war medals	148,729
Victory medals	145,035
Miscellaneous	879
	376,231

(b) *Correspondence and Inquiries.*—During the fiscal year, an increase is noticeable in the number of inquiries received and consequent correspondence despatched. More files and papers of all description have also been handled. A decided decrease is, however, found in the despatch of cables and telegrams.

Cables despatched	34
Telegrams despatched	140
Letters received	38,748
Letters despatched	321,578
Headquarter files received and acted on	206,868

(c) *Graves Registration and Casualties.*—This section is at present mainly concerned with verifications and correspondence with relatives, and the Imperial War Graves Commission in connection with the erection of headstones in the United Kingdom and Europe. An added function during the past year has been the preparation of rolls for the guidance of contractors for the erection of headstones in Canada and the United States and consequent research and verification in connection therewith.

Graves recorded	Period under review	Total recorded (approx.)
Great Britain	Nil	3,509
Theatres of war	212	37,282
Canada	2,227	5,989
Burial reports despatched		2,792
Photographs despatched		3,737
Register sheets to England		28,176
Verifications made		21,137

(d) *Documents.*—While work in this section shows a decrease for the year 1921-22, it is pointed out that as the work goes on, verifications, researches and completion of documents becomes increasingly intricate necessitating a decrease in the total output.

Miscellaneous documents filed	806,603
Total researches and verifications	958,779
Discharge certificates issued	470
Certificates of service issued	1,718

(e) *Hollerith.*—Work completed by this section during the past fiscal year is more than double that of 1920-21.

Total regimental Hollerith cards punched	466,354
Total medical Hollerith cards punched	260,380

(f) *Estates.*—The administration of military estates has been quite satisfactory although the situation arising in connection with estates of deceased soldiers whose next of kin reside in foreign countries at present inaccessible remains practically the same.

New estates received		628
Estates distributed		655
Estates on hand 31-3-22		999
Delayed shares on hand		65
Funds awaiting distribution		$193,344 52
Funds held in trust		$ 28,580 58
Estates on hand are made up as follows—		
(*a*)	Action pending	171
(*b*)	Awaiting administration	33
(*c*)	Bona Vacantia	25
(*d*)	No next of kin	19
(*e*)	Unable to locate next of kin	331
(*f*)	Unable to locate beneficiary	125
(*g*)	Next of kin in Russia	272
(*h*)	Next of kin in other foreign countries	37
(*i*)	Under contest	3
(*j*)	Insane man escaped from asylum	1
(*k*)	Living men unable to trace	2
(*l*)	Part shares	65
(*m*)	Supplementary	8
		1,072

REPORT OF THE QUARTERMASTER-GENERAL FOR THE FISCAL YEAR ENDING MARCH 31, 1922

(1) Directorate of Supplies and Transport

This Directorate includes all services in connection with the Army Service Corps, Veterinary and Postal Corps, including:—

Feeding and housing of troops and horses.
Rental of buildings (in conjunction with the Public Works Department).
Heating and lighting of buildings.
Dieting of hospital patients.
Transportation by land and sea (ocean, rail, mechanical road transport).
Horse transport and the provision of publicly owned horses.
Veterinary services.
Barrack services.
Telephone services.

Retrenchment in all services has been carried out as rapidly as possible. The strength of the Royal Canadian Army Service Corps was reduced by 2 officers and 82 other ranks during the year; and the services of 14 civilians were dispensed with.

Supplies for Troops and Horses (Permanent and Non-permanent Active Militia)

For the period covered by this report, 1,006 contracts for various supplies were made by the Contracts Branch at the request of this branch.

Six hundred and sixty thousand three hundred and eighty-eight rations were issued to troops during this period. These included alternate food supplies allowed under the regulations.

In addition to the above, seventy thousand and thirty-two hospital diets were supplied.

Four thousand tons of forage were issued during this period.

The food and forage provided by the contractors was of excellent quality. The following statement of the per diem cost of rationing men and horses shows the decrease that has taken place during the year:—

March, 1921—Food, $0·47423; forage, $0·4763.
March, 1922—Food, $0·33418; forage, $0·37132.

Accommodation

Public owned barracks and armouries are fully occupied; and where necessary and no public owned buildings are available, accommodation has been rented through the Public Works Department, as far as funds would permit.

Permanent Force.—The publicly owned barracks, with the exception of those at Winnipeg, Esquimalt, Kingston, and St. Johns (Quebec), and portions of those at Halifax, Quebec, and London, are far from satisfactory. A considerable number of temporary buildings erected for war purposes have been modified and are in use by Permanent Force troops for barrack and storage purposes; but these, being of wooden construction, are liable to rapid deterioration and loss by fire. The buildings at Old Fort Osborne Barracks have been demolished and the property turned over to the Provincial Government.

The Stanley Barracks property, Toronto, sold to the city of Toronto on April 16 1904, is occupied under suffrance.

Rosedale Barracks, in the same city, is of temporary construction, and in accordance with the terms of agreement should be demolished in the near future. It will be necessary to make other arrangements for the accommodation of the troops in this district.

Lighting and Heating of Buildings

The supply of heat and light to all buildings occupied by this department has been satisfactorily and economically taken care of. It was found necessary, in order to keep within the vote provided, to curtail the use of certain armouries and to close others during the winter months. As a result there were many complaints received from the units affected.

Transportation by Ocean and Rail

The majority of personnel returning from England were repatriated Imperial details and required only the issue of onward transportation to destinations in Canada under arrangements made with the Imperial Government. Transportation within Canada has been largely reduced.

A number of outstanding war transport claims were investigated and passed for payment, in addition to the current accounts of this branch of the Service.

The transport of units and parties to and from annual training camps was satisfactorily carried out during the year. No complaints were made regarding the manner in which the railways handled these movements.

Mechanical Transport

With reference to the Mechanical Transport Section, there were on hand on April 1, 1921, the following vehicles:—

Motor-cars	28
Trucks	17
Light delivery trucks and omnibuses	26
Ambulances	22
Motor-cycles	11

During the period covered by this report, no new vehicles were purchased, and twenty-three were disposed of either by transfer to other departments or by sale for the sum of $28,641.88.

Surplus spare parts for these vehicles were also sold, the sum of $7,646 being realized.

The number of mechanical transport vehicles now in use throughout the service is as follows:—

Motor-cars	20
Trucks	10
Light delivery trucks and omnibuses	23
Ambulances	21
Motor-cycles	7

Horse Strength, Permanent Active Militia

On April 1, 1921, the total number of horses in the Permanent Service, including Cavalry, Artillery, Infantry, Army Service Corps and other units, was 769, of which 60 were cast or sold and 6 died or were destroyed, leaving a balance of 703.

During this period there were 14 horses purchased, making a total now on hand of 717 horses, distributed as follows:—

R.C.D.	176
L.S.H. (R.C.)	119
R.M. College	53
R.C.H.A.	202
R.C.G.A.	31
The R.C.R.	12
P.P.C.L.I.	8
Royal 22nd Regiment	8
R.C.E.	31
R.C.A.S.C.	68
R.C.A.M.C.	2
R.C.M.G. Brigade	7
Total	717

Cartage was for the most part carried out by mechanical transport and by A.S.C. horse transport, but at all District Headquarters contracts were required to be made with civilian carters to supplement the above.

Veterinary Service

This service is on a peace footing and has been well maintained. On August 31, 1921, the strength of the Permanent Army Veterinary Services was reduced from 7 officers and 22 other ranks to 7 officers and 7 other ranks in order to effect necessary economy.

Telephones

Prior to the beginning of the period covered by this report, telephones had already been reduced to a minimum, and this policy has been maintained during the past year. The total cost for the whole of the Dominion for telephones used by the Permanent and Non-permanent Active Militia and Permanent Services is now $14,692.34.

Barrack Services

This service is responsible for the proper conduct of all duties in connection with the receipt, custody, issue, and accounting for fuel, light, water, paillasse straw, barrack, prison and hospital clothing, and other stores required for the use of troops in barracks and hospitals. This service is now on a peace footing.

(2) Directorate of Equipment and Ordnance Services

During the twelve months terminating on March 31, 1922, the Royal Canadian Ordnance Corps has been called upon to perform much additional work, chiefly on account of the arrival of equipments from Overseas, and on account of the reorganization of the Non-Permanent Force.

The following is a review of the principal services which have been carried out during the year, in addition to the regular routine duties which have been attended to in the usual manner.

Distribution of equipments.—The following guns and howitzers, etc., have been issued to batteries during the past year, together with the necessary equipments, viz.: harness, and other necessary stores:—

Q.F. 18-pdr. with equipment	58
Q. F. 4·5-inch Howitzer	8
Ordnance M.L. 6-inch Mortars	40

In addition to these equipments, issues have also been made of such necessaries as clothing, personal equipment, tools and other miscellaneous requirements.

Inspections and examinations.—During the past year approximately 30,000 S.M.L.E. rifles and 1,000 Lewis Machine Guns have been overhauled and placed in a serviceable condition by the staff of armourers in readiness for issue to the permanent and non-permanent force; this work is still proceeding.

Special examinations have been carried out by the Inspectors of Ordnance Machinery of artillery and transport vehicles prior to issue being made to units.

Inspections of explosives have also been carried out by Inspecting Ordnance Officers, special attention being paid to the ammunition received from Overseas. Further time will be required to complete this examination.

The usual inspection of all armament on charge to units has been carried out by the Inspectors of Ordnance Machinery.

On July 31, 1921, the establishment of the Royal Canadian Ordnance Corps was reduced from 513 Other Ranks to 433 (involving a reduction of 80 Other Ranks). The civilians now employed number 13 only, a reduction of 51 having been effected during the year.

Manufacturing Establishments.—Special efforts were made to speed up production of ammunition by the Dominion Arsenals, at Quebec and Lindsay, and Inspection Reports of all ammunition manufactured have been received and carefully examined. The quality of the ammunition manufactured has been excellent. A special ammunition was manufactured at the Quebec Arsenal for the Dominion Rifle Association which was reported upon as being 100 per cent perfect. The following classes of ammunition, etc., were manufactured at the establishments shown.

Quebec Arsenal—

Cartridges, S. A. Ball ·303-inch Mk VII.
" S. A. Ball ·303-inch Mk VII, special for D.R.A.
" ·303-inch Blank.
" ·303-inch Dummy.
" ·22-inch.
" 18-pdr. Shrapnel.
" 6-pdr.
" 3-pdr.
" 18-pdr. Blank.
Puffs, powder.
Mandrills, scabbard sword bayonet.
Boxes and packages for the above.

Lindsay Arsenal—

Cartridges S. A. Ball, Mk VII.
Boxes for the above.

The Dominion Arsenal at Quebec was damaged by two fires which occurred in the course of the winter, the first in the "danger" buildings on the Cove Fields, and the second in the main buildings of the arsenal. Very careful investigation of these fires has been made both by the Department and by authorities outside of the Department, with the result that it has been ascertained that these fires were of an accidental origin. The ammunition which was subjected to water and heat and damaged to a certain degree, has been very largely recovered and placed in a serviceable conditiion.

The Reports of the Superintendents of the Arsenals at Quebec and Lindsay will be found, respectively, in Appendices "D" and "E".

Ordnance Buildings.—A fireproof building has been secured in Toronto through the Public Works Department to be used for the storage of Ordnance equipment and clothing in lieu of the old inflammable buildings at the Old Fort, which are now

mainly used for the storage of bulky equipment of less value such as surplus wagons, etc. At Montreal an excellent storehouse has also been secured (to replace the building formerly in use on Alexander Street, which was found to be unsuitable and very much inferior to the present location). In Winnipeg one of the buildings of Tuxedo Barracks, used during the war by the Department of Soldiers' Civil Re-establishment, has been handed over to the Ordnance to replace the Ordnance stores at Fort Osborne which have been demolished and the property handed over to the Provincial Government.

Compilation and Publication of Regulations.—(*a*) The publication of Scales of Issue of Units' clothing and equipment has been continued regularly during the past year in conjunction with other branches concerned and the necessary amendments to those scales already published have been promulgated as necessary from time to time.

(*b*) Clothing and Equipment Regulations have been revised so far as possible, together with Regulations for Canadian Ordnance Services. This work is still in hand.

(*c*) Practically every Militia Form that is in use by this Branch and by Ordnance Depots has been reviewed and revised for publication where considered necessary.

Mobilization Equipments.—So far as stocks will permit, arrangements have been made for units' mobilization equipments to be separately stored in Ordnance Depots and separately accounted for and held for special issue in the event of emergency.

Caretakers' Services.—The administration of the Caretakers' Section, R.C.O.C. (civilian and military), has been given special attention during the past year with the result that so far as funds will admit each unit, or group of units, has been provided with either a full time or part-time caretaker, in order that the unit's equipment may be properly safeguarded and accounted for.

An establishment has been prepared for each military district, based on the funds available for the service and a redistribution of the duties of the caretakers employed has been carried out throughout each military district.

Ordnance Depot Workshops and Laboratories have been operated throughout the year under the jurisdiction of the several Inspectors, viz: Inspector of Ordnance Machinery; Inspecting Ordnance Officers, and Inspector of Armourers.

The operation of these workshops has been facilitated considerably during the past year and economy has been exercised to a great extent on account of the additional machinery which has been transferred to the Militia Department from the Department of Soldiers' Civil Re-establishment.

Repairs to Ordnance Stores have been carried out, and, in addition, many articles have been manufactured for issue to troops which could not be obtained from local trade.

Losses in transit.—In all cases where articles of stores and clothing have been lost in transit, claims have been submitted against the carrier concerned.

Sales of Surplus Stores.—Surplus stores and clothing, to the value of $171,863.57, have been disposed of in conjunction with the Purchasing Commission of Canada during the past year.

REPORT OF THE MASTER GENERAL OF THE ORDNANCE FOR THE FISCAL YEAR ENDING MARCH 31, 1922

(1) Engineer Services, 1921-22

During the year 1921-22 Engineer Service work was limited to the maintenance and upkeep of existing buildings and works, except for certain new work on the Connaught Rifle Range, and although every effort has been made to keep expenditures as low as possible, certain very necessary work could not be undertaken, for example, new roofs are urgently needed on the Moose Jaw and Prince Albert Armouries.

The lack of Officers, reported on last year has been partially remedied by the return of three Officers who were attending courses at the School of Military Engineering, Chatham. In July next three more Officers are due to return from the School of Military Engineering, Chatham, so that a sufficient number of Officers will be available to carry on the necessary work during the coming year. The difficulty of obtaining suitable Military Foremen of Works, reported last year still exists. It seems impossible to induce suitable men to enlist for this work. Three men were given a special course last year and it is hoped to open a new course during the coming year.

During the year the Connaught Rifle Range was opened and used by the Dominion of Canada Rifle Association for their Annual Meeting. The range was most favourably commented upon, and it is expected that all future meetings of the D.C.R.A. will be held at this range. The Rockcliffe Range will be used for local rifle shooting until convenient transport facilities to Connaught are available.

The work was again divided into two main heads: (1) Demobilization Appropriation, for work, the necessities for which were brought about by the war, and (2) Engineer Services and Works Vote for ordinary upkeep, fair wear and tear. The work chargeable to the Demobilization Appropriation was much smaller than during the previous year and very little expenditure on this account will be made during the coming year.

A detail of work costing $1,000 or over is as follows:—

Chargeable to Demobilization Appropriation

London.—Demolishing buildings, painting roofs of buildings, Tecumseh Barracks, reconditioning buildings Wolseley and Tecumseh Barracks.

Toronto.—Fitting up College Street Armouries, painting Armouries.

Long Branch.—Demolishing buildings.

Kingston.—Renovating interior "C" Block, Tête-de-Pont Barracks.

Quebec.—Converting huts into Married Quarters, Cove Fields.

Halifax, N.S.—Repairs to piers, roads, etc., fitting up barrack buildings.

Winnipeg.—Convert building into Ordnance Stores, Tuxedo, erection of stables for R.C.H.A. Tuxedo, repairs to roads, sidewalks, fences, etc., Tuxedo, addition to detention barracks, Tuxedo, repairs to roofs of buildings, Tuxedo, Barrack accommodation for R.C.H.A. Tuxedo, provide married quarters, Tuxedo, repairs to gunshed, R.C.H.A. Tuxedo, repairs Manitoba Military Hospital, Tuxedo, repairs to interior of buildings, Tuxedo.

Saskatoon.—Renovating Armoury.

Ottawa.—Repairs and alterations, Canadian Building.

Chargeable to Engineer Services and Works

London.—External painting, Wolseley Barracks, repairs, Wolseley Barracks, repairs Tecumseh Barracks, relay hardwood floors Armoury.

Windsor.—Paving street in front of Armoury.

Long Branch Rifle Range.—Repairs to markers' shelter.

Brantford Rifle Range.—Re-erecting targets and shelters.

Toronto.—Repairs Stanley Barracks, repairs Rosedale Huts, repairs Armoury.

Hamilton.—Repairs Armoury, installation heating system Signal and Medical Units Quarters, Armoury.

Brantford.—Fitting up Schultz Building for 54th Battery and Brant Dragoons.

St. Catharines.—Provision of rifle racks and cupboards, Armoury.

Port Hope.—Reconstruction of rifle range.

Cobourg.—Reconstruction of rifle range.

Kingston.—Maintenance and repairs Tête-de-Pont Barracks, maintenance and repairs Artillery Park, maintenance and repairs Armoury.

Lindsay Arsenal.—Incidental and minor repairs, place underground steam line to Ordnance Bldg.

St. Johns, P.Q.—Repairs to Barracks.

St. Hyacinthe, P.Q.—Lay concrete floor in drill hall.

Farnham, P.Q.—Take down 2 water towers and transfer to South March, Ont.

Quebec.—Repairs Military Hospital, repairs married Officers' quarters, repairs St. Louis Barracks, repairs casemates, Citadel, repairs Citadel (Generally), new floors No. 22 and 23 casemates, Citadel, scraping casemates, whitewashing and painting Citadel, repairs to married quarters, Cove Fields, repairs A.S.C. Stores, Offices and Quarters, Citadel Hill, repairs Ordnance Stores, double skylights in Artificers Shop, Ordnance Depot, repairs City walls and gates, repairs sidewalks and fences, removal of boulders from cliffs, repairs Dambourges Hill, roads and surface drainage scheme Cove Field Barracks, and Lévis, removal of snow, fitting up No. 2 Fort for magazine, repairs Dominion Arsenal, painting and pointing Artillery Workshops, Dominion Arsenal, painting Danger Bldg., Cove Fields.

Levis Camp.—Repairs generally, repairs drainage system, overhauling water supply system.

Valcartier Camp.—Repairs.

Little River, Que.—Repairs to proof butts.

Aldershot Camp, N.S.—Repairs to stop butts rifle range.

Charlottetown, P.E.I.—Repairs to rifle range.

Halifax, N.S.—Repairs to Citadel, repairs South Barracks, repairs Glacis Barracks, repairs Pavilion Barracks, repairs R. A. Park, repairs Military Hospital, overhauling heating plants, internal repairs and renovating Pavilion married quarters, provision of supply depot, Glacis Barracks, repairs to Ordnance Buildings, repairs fortifications, repairs fortification machinery, repairs R.C.E. vessels, revision of record plans, Outforts maintenance of temporary buildings, laying cable for defence lights.

McNabs Island Camp.—Repairs.

Moncton, N.B. Rifle Range.—Repairs.

Chatham, N.B. Armoury.—Internal and external repairs.

Winnipeg.—Maintenance and repairs to Barracks, maintenance Tuxedo power house, maintenance and repairs Manitoba Military Hospital.

Vancouver.—Repair damage caused by fire Richmond Rifle Range, dyking and drainage, Richmond Rifle Range.

Esquimalt.—Alterations to sanitary arrangements, Work Point Barracks.

Esquimalt Fortress.—Repairs to fortifications.

Victoria, B.C.—Fit up New Ordnance Depot Building.

Prince Albert, Sask.—Erection of fence and danger signs rifle range site.

Edmonton.—Construction of rifle range.

Sarcee Camp.—Engineer Services.

R.M.C. Kingston.—Installation of Hydro-Electric transmission power lines, making roads, paths, grading, etc., back of new Educational Building, general repairs, repair damage caused by storm December, 1921.

Petawawa Camp.—Maintenance of roads Centre Camp, maintenance camp buildings, maintenance water system, maintenance telephone system, maintenance roads, trails, bridges, outside Centre Camp, repairs Artillery and Rifle ranges.

Ottawa.—Renovating G.G.F.G. Quarters, Drill Hall, asphalt paving Laurier Ave. W. (Dept's share), maintenance and preparation of Connaught Rifle Range for D.R.A., repairs and maintenance Rockcliffe Rifle Range.

Elora Armoury.—Repairs and improvements.

Guelph Armoury.—Grading and fencing grounds.

Fergus Armoury.—Repairs and improvements.

No new Armouries, Drill Halls or Rifle Ranges were constructed during the year but the Rifle Ranges at Cobourg, Port Hope, and Guelph were reconstructed.

Military Properties disposed of

Port Robinson, Ont.—Drill Hall Site—2 acres sold for $150.00 under authority of Order in Council July 14, 1921.

Chester, N.S. Reserve.—3 acres, sold for $550 under authority of Order in Council October 28, 1921.

Oxford, N.S.—Drill Hall Site—0·06 acres, sold for $85, under authority of Order in Council, September 23, 1921.

Musquodoboit, N.S.—Drill Hall Site—0·17 acres, sold for $150 under authority of Order in Council, October 29, 1921.

Victoria, B.C.—(Old) Drill Hall Site—transferred back to the Province of British Columbia, Order in Council dated April 25, 1921.

Military Properties acquired

Parry Sound, Ont.—Rifle Range Site—45 acres purchased to complete, for $429.80, Order in Council dated October 10, 1921.

(2) Report of Staff Officer, Artillery

Armament

Three B.L. 9·2-inch coast defence guns developed defects in manufacture. The department was fortunate in procuring three new guns, to replace, from the British Admiralty, at only 10 per cent of cost price, these guns being from surplus war stocks.

Four Q.F. 12-pr., 12-cwt. guns of the coast defences have been condemned after continuous use and firing practice since 1905, when they were taken over from Imperial service. They have been replaced from the stock of the Department of the Naval Service, at a much reduced price.

A surplus stock of 3,600 shell and 5,700 cartridges for Q.F. 12-pr., 12-cwt. guns has also been received from the Department of Naval Service, free of charge, and will save a considerable expenditure for practice purposes, covering a period of years.

Patents and Inventions

A considerable number of patents and inventions have been submitted and dealt with by this branch; nothing has been brought to notice which would in any way materially improve the military equipment now in use.

Artillery Training, 1921-22

The limitation in the funds available for annual drill, 1921-22, caused certain restrictions in arrangements for the training of the artillery. Instead of the usual sixteen days in practice camps of pre-war years, it was necessary to limit the training to six days' training by units, at their local headquarters, followed by four days' gun practice by firing detachments only, at the artillery practice camp.

Considering the difficulties of reorganization and the generally unsettled industrial condition, the attendance at training and practice was most satisfactory, and the performance of the firing detachments in their gun practice showed that, in spite of these problems, the units were attaining in a large measure technical efficiency.

Practice camps for mobile artillery were held at Petawawa, Ont., Camp Hughes, Man., and Sarcee, Alta. Firing detachments representing forty-one field batteries and eight heavy and seige batteries of Non-permanent Artillery carried out gun practice at these camps.

Practice seawards was carried out at Halifax by the 1st Regiment, Canadian Garrison Artillery, and firing detachments from the 6th Quebec and Lévis Regiment, C.G.A., of the Non-Permanent Artillery. The 9th Siege Battery (8-inch How.) carried out practice with B.L. 5-inch Howitzers at the outforts of Halifax. The 5th B.C. Regiment, C.G.A., of Victoria, had not yet proceeded sufficiently far in its reorganization to properly carry out this training.

Royal Schools of Artillery

The reorganization of Royal Schools of Artillery foreshadowed in the Annual Report of last year was successfully carried through. Three courses were held during fall and winter at the Royal School of Artillery (Mobile), at Kingston, Ont., and Winnipeg, Man., and the R.S.A. (Coast Defence and Anti-aircraft) held two courses at Halifax and one at Quebec for the qualification of officers and n.c.o.'s of the Non-Permanent Artillery. At the R.S.A. (Mobile), officers and n.c.o.'s from every brigade and nearly every battery thereof attended the qualifying courses, the total reaching 22 officers and 203 n.c.o.'s. The attendance at Royal Schools of Artillery (C.D. and A.A.), Halifax and Quebec, totalled 5 officers and 32 n.c.o.'s. The general standard of candidates was high, and all showed a genuine desire to improve their military knowledge and obtain certificates of qualification.

A Provisional School of Artillery (Mobile) was held at Charlottetown, P.E.I. A school of this nature is, however, not satisfactory to the Artillery Branch of the Service, as it is impossible to carry out proper instruction or conduct examina-

tions on such important subjects as battery tactics, equitation, harness, stable management, etc., items in the syllabus which can only be dealt with at a Royal School of Artillery where a permanent battery is available. In the case of the school above referred to, the issue of qualifying certificates to officers attending is withheld pending examination in the practical subjects during summer training.

The Artillery Staff course, discontinued since 1913, recommenced on March 1, 1922, and will continue for a period of eight months. Five artillery officers and eleven n.c.o.'s of the Permanent Force are attending. The course has for its objects the development of officers and n.c.o.'s for instructional work and eventual selection for duty as gunnery and assistant gunnery instructors.

Reorganization of Canadian Artillery

The reorganization of the artillery throughout the Dominion has proceeded with encouraging results. Practically all units showed marked improvement in their organization, and the changes in the officer personnel, so noticeable in the previous year due to the unstability of the post-war conditions, are becoming normal.

(3) Survey Division

General

Survey work was carried out in Manitoba and Quebec. In Manitoba a survey was completed of Camp Hughes Reserve, both control and topography, work being confined to the Reserve,—about one hundred and sixty square miles. All other survey work was confined to Quebec; the unsurveyed portion from the international boundary to the St. Lawrence river. This area will require about three years to complete.

Thirteen other ranks from Permanent Force units—eight from Military District 10 and five from Military District 4—were employed during the summer as engineer helpers, both at Camp Hughes and Quebec, in place of civilian temporary employees. The officers in charge of survey parties reported most favourably on the work of these men, and the result was so satisfactory in every way that authority was obtained to hold a course of instruction in surveying at the survey offices, Ottawa, for their further instruction. The course was held from January 2 to April 15, 1922. The success of this course was so marked that it is hoped it may be continued yearly.

The change from the present method of map reproduction (photo-etched copper plates with flat-bed printing), to rotary offset printing from zinc is becoming more urgent.

Field Work

Control.—Horizontal and vertical control was carried out at Camp Hughes and in Quebec. At Camp Hughes horse transport, camp equipment and every possible assistance was furnished by the General Officer Commanding, Military District 10. Work was begun the first week of May and finished the last week of June, all traverses computed, plotted and plane table sheets prepared by July 1, when topography was commenced. The greater part of the traverses were across prairie, following no road, one hundred and thirty-seven miles of chain transit control.

Control work did not begin in Quebec until June 1, owing to delay in repairing the motor truck, obtained for this service. Work was chiefly confined to the Woburn, Megantic, Armstrong and St. Evariste sheets.

The great advantage of motor, as compared with horse, transport was again amply proven.

Chain Transit	583 miles
Stadia Transit	314 "
Levelling	900 "

Topography.—At Camp Hughes work began about June 15, and was finished October 10. A senior topographer, with two men, sent from Quebec to take charge, with military personnel on the ground, completed the party of five. Field work was carried out at 4 inches to 1 mile, to enable all detail to be shewn to scale on the 1/20000 map. Even at this large scale it was found to be impracticable to use a contour interval of ten feet, as had been intended, owing to the intricacies of the numerous small sand hills, and a twenty-foot interval was used—six metres approximately.

As there is little detail on the ground to serve as control points for possible air photos, a number of prominent trees were located on the map, some being trimmed; other points being fixed and marked by poles set about four feet in the ground.

Work began in Quebec May 2nd and was stopped November 15th. The Three Rivers, Bécancour, La Patrie and Malvina sheets—all partly surveyed previously—were completed and 90 square miles of the Woburn sheet. Full use is being made of the triangulation and topographic work of the International Boundary Commission in this region, complete information being kindly supplied by Mr. McArthur, Canadian Commissioner.

	Sq. miles
Total topography completed in Quebec	968
Total topography completed at Camp Hughes	170
	1,138

The present condition of the field and draughting work is as follows:—

Districts fully controlled, ready for topographers:—

Ontario, 6.—Grand Bend, St. Marys, Stratford, Alliston, Barrie, Beaverton.

Quebec, 4.—Lyster, Arthabaska, Thetford, St. Sylvestre.

Districts fully surveyed, ready for draughting:—

Quebec, 4.—Three Rivers, Becancour, La Patrie, Malvina.

Cape Breton.—5 sheets in vicinity of Sydney.

In hands of draughtsmen and engraver, 6:—

Halifax, Uniacke and Musquodoboit.

Yamaska and Aston 1-inch and Brome ½-inch.

The older sheets of the 1-inch map are much in need of revision on the ground to add new data and, in some cases, to correct known inaccuracies. There is sufficient work of this nature to keep a small section of surveyors permanently employed. Much of this work could be carried out, in certain districts, during the winter.

Printing.—The following new maps and diagrams were printed:—

Standard 1-inch sheets, Coaticook, Sambro, Chezzetcook	1,721
Maps for war game, 32 sheets 6-inch to 1 mile	6,747
Identification patches	1,725
Telephone "D", large scale	608
Topographic forms	1,225
9 confidential diagrams, etc.	815
Petawawa enlarged to 1/8000, 15 sheets	90
Reprints of 16 sheets 1-inch maps	9,650
Total maps and diagrams	22,581
Lantern slides	972
Blue prints	202

Maps and Diagrams Issued.—The demand for the one-inch and one-half-inch topographic maps continues to increase, 2,347 more having been sold than last year.

1-inch and ½-inch sheets. Free to various Government Departments	5,561
1-inch and ½-inch sheets. Sold to the public	5,038
Special maps and diagrams for instructional use	7,983
Total	18,582

Changes in Staff

Three new men were enlisted in the R.C.E. for service in the Survey Division; and one quartermaster sergeant, engineer clerk, died during the year.

REPORT OF THE DIRECTOR OF PAY SERVICES FOR THE FISCAL YEAR ENDING MARCH 31, 1922.

Notwithstanding that the demobilization of the Canadian Expeditionary Force was completed by the period ending March 31, 1920, excepting personnel employed in winding up outstanding questions in connection with the war, the Department is still called upon to deal with a very large number of claims raised by discharged soldiers, or their dependents, in connection with their pay and allowances while serving, war service gratuity, etc., entailing a large amount of correspondence.

This work may be considered as an unavoidable aftermath of the participation by Canada in the war, and it may be of interest to note that a very large increase in claims of this nature was experienced as a direct result of the campaign of the Great War Veterans' Association and other ex-soldiers' organizations.

Matters of this kind often entail a most exhaustive investigation, and are dealt with, under the Assistant Director Pay Services (Demobilization), by a special civilian staff, who are thoroughly familiar with the regulations which were in force during the war. The report of the Assistant Director Pay Services (Demobilization) is included herein.

(1) Permanent and Non-Permanent Active Militia

The Pay Services of the Active Militia, both Permanent and Non-Permanent, are now performed completely by the personnel of the Royal Canadian Army Pay Corps, divided into small detachments, stationed at the several district headquarters.

As forecasted in the last annual report, it was possible during the fiscal year under review to reduce the strength of the corps to substantially a pre-war basis, taking into consideration the two military districts, No. 7 and No. 12, which did not exist in 1914, and certain changes in the system of paying troops and accounting in the district pay offices.

It is to be noted that in addition to paying the troops, the Royal Canadian Army Pay Corps Staffs in the several districts make all disbursements and keep accounts in connection with supplies, transport, maintenance, repairs, construction, etc., in the district, both for the Permanent and the Non-Permanent Active Militia, necessitating careful and accurate records, and the submission of many returns to Militia Headquarters.

Owing to the discharges which have taken place, and for various other reasons, certain changes in the location of the present personnel would be advisable, but, owing to the scarcity of funds, only those transfers which are unavoidable have been recommended.

The personnel of the staff during the period under review have given entire satisfaction, performing the duties allotted to them in a conscientious and capable manner, and at no time have any complaints been received, either from the Permanent or the Non-Permanent Active Militia, regarding any members of the staff or the manner in which their duties have been performed.

The system of Clothing Allowance which was in force before the war, though not practicable under war conditions, works well in peace time, and should be re-introduced. It induces the men to take good care of their clothing and should result in a substantial saving in the cost of clothing.

The undermentioned financial statements, included in Appendix "B," cover the fiscal year ending March 31, 1922, and show the expenditure in each district in connection with the Permanent and Non-Permanent Active Militia:—

1. Allowances paid to the Active Militia in the various districts.

2. Statement of expenditure, by stations, on account of pay and allowances of the Permanent Force.

3. Statement of expenditure on account of pay and allowances of officers and warrant officers of the Permanent Force.

4. Statement of expenditure on account of pay and allowances of officers and warrant officers of the Permanent Force, with details of expenditure, by stations.

5. Statement of expenditure on account of pay and allowances of n.c.o.'s and men of the Permanent Force.

6. Statement of expenditure on account of pay and allowances of n.c.o's. and men of the Permanent Force with details of expenditure, by stations.

Under the jurisdiction of this directorate are the Stores Audit Division and the Paymaster, Militia Headquarters. Reports upon the work of these sections of the Directorate follow:—

Stores Audit Division

Audit of ledger and stock accounts of ordnance and other receiving and distributing depots, accounting for militia stores, clothing and accessories, for use of the Department of Militia and Defence, and ledger accounts of officers receiving stores to equip fortifications and militia buildings, and clothing and equipment for use of troops, has been carried out during the period under review. These accounts are a record of stock on hand, and of all transactions in connection with receipt and issue of stores, clothing and necessaries. distributed throughout the Dominion to different accounting officers.

Stock and ledger accounts audited are as follows (clothing accounts Permanent Force monthly, all other accounts annually):—

Ordnance Depots.
Engineer Stores.
Armament Stores.
Barrack Stores.
Mechanical Transport Stores.
Water Transport Stores.
Medical Stores.
Veterinary Stores.
Artillery Equipment.
Clothing and Equipment Accounts, Permanent Units.
Clothing and Equipment Accounts, Non-Permanent Units.
Clothing and Equipment Accounts, Royal Military College.
Ammunition and Small Arms Accounts, Rifle Associations.
Equipment and Ammunition Accounts, Cadet Corps.

The stores audit system ensures that all articles of stores and clothing purchased for the Department are accounted for in the stock accounts of receiving and distributing depots, and, after distribution for use by the troops, that they are correctly accounted for by the officers responsible for their care and custody.

Accounts audited during the period under review—3,227.

Value of stores and clothing recovered during the fiscal year, as result of stores audit observations on accounts—$49,922.46.

Paymaster, Militia Headquarters.

The Paymaster, Militia Headquarters, for the year under review, has been responsible for disbursements on the following accounts:—

(*a*) Payment of all pay and allowances for military personnel employed at Militia Headquarters.

(*b*) Payments in liquidation of the estates of deceased officers, warrant officers and men.

(*c*) Disbursements in connection with the Petawawa Training Camp.

During the period April 1, 1921, to March 31, 1922, the Paymaster, Militia Headquarters, issued 13,881 cheques, amounting to $1,203,200.85 on the above accounts.

(2) Canadian Expeditionary Force

This section is known as that of the Assistant Director of Pay Services (Demobilization). The work of this section for the fiscal year ending March 31, 1922, has not varied greatly from that of the previous year, except for the additional operations in connection with the redemption of sterling exchange taken over from the Chief Accountant in August, 1921, but there has been a certain decrease in volume.

The work of the section may be summarized as follows:—

1. War service gratuity.
2. Pay and allowances, including separation allowance and assigned pay adjustments.
3. Working pay.
4. War loan and refund of transportation.
5. Redemption of sterling exchange at par.
6. Accounting sub-section.
7. Overseas and Canadian voucher library.

War Service Gratuity

The work of this sub-section may be considered in three categories:—

(*a*) War service gratuity to ex-members of the C.E.F. and their dependents.

Cases of delayed applications and claims of additional awards on account of service not previously substantiated, also claims of dependents where the ex-soldiers on demobilization did not apply on their behalf, are still being received and require investigation and adjustment.

The cases for further awards are relatively few, as the majority of claims, after extensive research, prove to be cases where no adjustments are necessary, when the facts are carefully explained to the claimants.

(*b*) Gratuity to dependents of members of the C.E.F. who were killed or died on service, and to the dependents of Canadians who were killed or died during service with His Majesty's Forces.

Practically all claims in this category, which are still being received, are from dependents of Canadians who served in the Imperial Forces, as, with few exceptions, settlement was made with the dependents of deceased members of the C.E.F. at the time the dependents' gratuity was authorized, without waiting for applications.

(c) War service gratuity to ex-members of His Majesty's Forces (and their dependents) who were domiciled in Canada prior to the war and who, after discharge from such force, became resident and domiciled in Canada.

The usual special investigation for verification of service, amount of Imperial gratuity paid, etc., was carried out through the Imperial Army authorities in each case. In addition, dependent's eligibility was gone into where such cases arose.

Such claims were dealt with under the provisions of Order in Council P.C. 3145 of December, 1920, extending the provisions of Order in Council 2385 of December, 1919, to March 31, 1922.

During the fiscal year 1921-22, war service gratuity was paid in 1,737 cases, involving an expenditure of $277,508.61 under the following headings:—

562 Ex-Imperials	$132,541 80
142 Widows and dependents of those who died on service	12,927 46
1,033 Ex-members C.E.F.	132,039 35
	$277,508 61

The number of files handled during the fiscal year in connection with investigation of war service gratuity averaged 274 weekly and letters were written averaging 238 weekly.

At the end of the fiscal year new claims were being received at an average of 5 daily.

Adjustment of Pay and Allowances, including Separation Allowance and Assigned Pay

Claims and inquiries (in connection with the pay and allowances, separation allowance and assigned pay of "other ranks" ex-members of the C.E.F., during any period of their service, no matter when or where such service was performed) are dealt with, and adjustments authorized when due.

Considerable information regarding the pay and allowances drawn by officers of the C.E.F. in Canada during the years 1919 and 1920 was furnished to the Income Tax Department.

During the fiscal year under review, the sub-section handled an average of 233 files weekly, and the outgoing correspondence averaged 149 letters per week. Adjustments of pay and allowances, etc., amounting to $107,813.79 were paid during the year.

Working Pay

At the beginning of the fiscal year 1921-22, 30 claims for working pay were under investigation and approximately 50 claims per month were received and dealt with from that date to the end of October, 1921.

Following the "Clean Sweep Campaign" of the Great War Veterans' Association, the number of claims greatly increased, and from the 1st November, 1921, to the end of the fiscal year, approximately 1,050 claims were received, on which some 1,300 files were handled, and approximately 1,500 letters written.

War Loan and Refund of Transportation

This sub-section collected and transmitted to the Finance Department all moneys subscribed for Victory Loan by soldiers and members of the Militia Department during the years 1917-18-19, and now deals with any inquiries regarding such subscriptions.

At the end of the fiscal year 1921-22 a balance was held in trust at the Bank of Montreal, Ottawa, amounting to $1,090.65, and thirteen bonds were held by the Finance Department and four by the Bank of Montreal, London, England, for which no instructions for delivery have yet been received.

During the year 1921-22, 113 claims for refund of transportation of dependents of soldiers who returned from overseas were approved.

Sterling Exchange

In August, 1921, the administration of exchange adjustments were transferred from the Chief Accountant to the Assistant Director Pay Services (Demobilization).

This sub-section carried out the arrangements as outlined and more clearly defined in Order in Council P.C. 2287 of the 30th June, 1921.

This Order in Council renewed the authority of Order in Council P.C. 1761 of 1920, to charge the expenditure to the Demobilization Vote, amplified the regulations, and included the proviso that redemption at par would be continued "under conditions which will ensure that only those who are entitled to the privilege will secure the benefits of it", also that payment should be made only after claims had been submitted to the Department of Militia and Defence, and that department was satisfied that the soldier was entitled to the benefit of the privilege granted by the regulations, and that the soldier must supply the department with such evidence as was deemed necessary in support of his claim.

In accordance with the provisions of Order in Council P.C. 2769, dated August 7, 1921, the Board of Pension Commissioners took over that portion of the work relating to the redemption at par of Imperial pension cheques, owing to the facility of verification in their office with Imperial pension records. A representative from this sub-section was attached to the office of the Board to assist in this work.

In the general procedure adopted, the banks were instructed to cash all British drafts, etc., at current rate of exchange and forward to Ottawa the documents required in the regulations.

When the original drafts, documents, etc., were received, reimbursing cheques at the current rate of exchange were then issued to the banks.

If, after the necessary investigation, the claim was finally approved, an additional cheque for the difference between the current rate and par was issued, either to the claimant or the bank, as instructed.

Claims arising out of past transactions were also dealt with on receipt of necessary documents substantiating claim.

After August, 1921, such cheques issued to an Imperial pensioner, whose claim of pre-war residence in Canada had been satisfactorily established, bore the following notice on the face of the cheque:—

> "Payable at par of exchange in Canada only, on presentation through a bank to the Department of Militia and Defence, Ottawa."

The banks were authorized to cash these cheques at the par rate of exchange, and were duly reimbursed by cheques issued from this sub-section.

The greatest care has been exercised in administering the regulations governing the redemption of sterling and in recording transactions effected.

Before any payments are effected every transaction is pre-audited and a careful audit of accounts has been maintained.

The following particulars showing the number of cheques issued and the expenditure for the fiscal year ending March 31, 1922, cover the two divisions of the work, i.e., Redemption of sterling exchange at par, and claim for difference of exchange on past transactions.

Redemption of sterling exchange:—		
Number of cheques	2,575	
Expenditure		$656,272 91
Claims for difference of exchange:—		
Number of cheques	2,180	
Expenditure		$41,666 11

Accounts Sub-section

The Accounts Sub-section effects payment of all adjustments on account of War Service Gratuity, Pay and Allowances, including Separation Allowance and Assigned Pay, and Sterling Exchange, on the authority of the Sub-section which investigates the claim.

The cheques are written and mailed in this Sub-section, and the following is a summary of the work in this connection for the fiscal year 1921-22:—

Number of letters despatched as ordinary mail	28,647
Number of letters despatched as registered mail	2,014
Number of registered letters traced	152
Number of files passed through sub-section	5,500
Number of Canadian war service gratuity cheques mailed	1,155
Number of Imperial war service gratuity cheques mailed	2,395
Number of dependents war service gratuity cheques mailed	140
Number S.A. and A.P. cheques mailed	328
Number of pay and allowance cheques mailed	677
Number of sterling exchange cheques mailed	2,575
Number of difference in exchange cheques mailed	2,180
Total cheques issued	9,450

Voucher Library

The following classes of Overseas Pay documents have been lodged in the Voucher Library, and during the fiscal year 1921-22 the work of filing and arranging them was continued, so that they might be available for easy reference as required from time to time by the various Branches of the Department:—

Paylists (Officers' and Other Ranks).
Acquittance Rolls.
Active Service Pay Books.
Cheque Books.
Cheque Lists.
Bank Statements.
Pay 2 Summaries.
Cashiers' Documents (Remittances, Cash Payments, Refunds).
Officers' Documents (Pay and Allowances, Claims, Ordnance Issues, Refunds, &c.)
Cheques:
Assigned Pay, Separation Allowance, Leave, War Service Gratuity, Paymaster General, Paymaster General Non-Effective, Officers' Pay, Officers' Claims, Senior Paymaster, London, C.E.F. Details.
Assigned Pay Nominal Rolls.
Overseas Accounting Ledgers.

At the end of the fiscal year nearly 200 cases of documents still remained to be unpacked, sorted and filed.

Numerous queries from the various Branches of the Militia Department, are dealt with daily by this Sub-section, and in addition to completing the work of sorting and filing nearly 2,000 cases of documents shipped from Overseas after demobilization, the documents forwarded from the Militia Department necessitated the merging of various vouchers and records and the consequent continual revision of filing records, indices, etc.

The filing of paid cheques formed a considerable part of the work in the fiscal year 1921-22, and it is estimated that altogether over twenty million have been sorted, checked and tabulated.

At the end of the fiscal year, approximately 100,000 cheques still remained to be filed.

Officers' Pay Section

This Sub-section has been operated separately from the Section of the Assistant Director Pay Services (Demobilization).

The work performed is similar to that carried out by the "Pay and Allowances, S. A. and A. P., Sub-section" previously referred to, and the Sub-section deals with enquiries, complaints or questions regarding the pay accounts of Officers respecting their period of service with the Forces during the War.

During the early part of the year the number of claims continued to decrease gradually, but, as in the case of "Other Ranks", the volume of claims and queries was greatly increased during the latter part of the year, due to the attitude of the various soldiers' organizations in inviting correspondence on all matters pertaining to the service, etc., of ex-members of the C.E.F.

The same difficulties are experienced as with the questions raised by ex-Other Ranks, and practically all cases are of a complicated nature and require considerable investigation.

In many instances a careful explanation of the circumstances fully satisfies the claimant or the enquirer.

Every case receives the most careful consideration, so much so indeed that in various instances, where the circumstances justified such action, special Orders in Council have been put forward to cover cases with which it was not possible to deal under the regulations in force during the War.

During the fiscal year ending 31st March, 1922, approximately 2,300 letters were despatched by this Sub-section, in connection with which it was necessary to examine over 9,000 files.

(3) Overseas Military Forces of Canada

Although a final settlement was reached covering transactions of a financial nature, between the War Office and the Overseas Ministry, up to May 31st, 1920, belated claims respecting O.M.F. of C. transactions, as distinct from C.E.F. transactions, continued to be received from other Departments of the Imperial Government, contractors, individuals, etc. These are dealt with by the special committee which is responsible for dealing with all questions arising in connection with the administration Overseas, in accordance with the provisions of Orders in Council P.C. 1705 of 1920 and P.C. 4544 of 1921. Any such claims or accounts are carefully checked and are authorized for payment if found from examination of the Overseas Records to be in order.

During the period under review, O.M.F. of C. claims and accounts were passed for payment as follows:—

For payment in England (through High Commissioner for Canada)	$8,975 06
For payment in Canada	631 65
	$9,606 71

Collections of outstanding accounts against Imperial Government Departments and individuals in England, amounting to $145,209.98, were also effected. This sum mainly covers collections under the reciprocal arrangements between the Overseas Ministry and the Air Ministry.

Prior to October, 1919, practically all the Overseas equipment, stores, supplies, etc., had been disposed of by the Overseas Disposal Board. During the year under review, however, Sales Dockets Nos. 1 to 88, covering sales of furniture, equipment, etc., made by the Overseas Disposal Board No. 2, during period October, 1919, to February, 1922, amounting to $21,806.01, were received and checked.

During the year, returned Sterling Drafts and cheques amounting to approximately £1,200 were received. These covered payments to soldiers or their dependents Overseas, which had not reached their destinations or were uncashed for various reasons, the amount in each case being re-credited to the account of the individual concerned.

Regimental and Canteen Funds

As explained in the report for the last fiscal year, the Regimental and Canteen Funds of Overseas Units having no territorial affiliation in Canada, such as Convalescent Hospitals, Reserve Units, Work Shops, etc., were transferred to the custody of the Finance Department, to be held with the Canadian share of the profits from the Expeditionary Force Canteens in France and the Army Canteens in Great Britain. These funds are still being held by the Finance Department pending the final decision as to disposal.

REPORT OF THE CHIEF ACCOUNTANT FOR THE FISCAL YEAR ENDING MARCH 31, 1922

EXPENDITURE

The expenditure for the fiscal year 1921-22 due to War Services shows a decrease of about 50% over the previous year, being almost entirely for adjustment of claims for services rendered during previous years. The only considerable current expenditure is for hospitalization at Winnipeg, where the permanent Military Hospital is used for war cases which ordinarily would be in charge of the Department of Soldiers' Civil Re-establishment but which, for convenience and economic reasons, are accommodated by the Department of Militia and Defence.

The Militia expenditure for 1921-22 was about the same as for the previous year. In the comparison of figures which is shown below, Civil Government is not included in either case; Civil Government expenditure is shown in the appendix.

While the Militia expenditure for this year is about the same as in 1913-14, these figures should not be compared without taking into account the value of the dollar which for the services covered by the expenditure for 1921-22 might be fairly estimated at about 60 cents. So that the programme for training, etc., carried out in 1913-14, for which there was an expenditure in that year of approximately $11,000,000, would have required an expenditure of, approximately $18,500,000 for the year 1921-22.

Following is a comparative table of total expenditure and revenue for the year 1920-21 and 1921-22:

Expenditure

	Militia Votes	Demobilization	Total
1920-21	$10,058,625	$16,229,764	$26,288,389
1921-22	11,016,939	8,575,896	19,592,835

Credits—Refunds and Revenue

	Revenue	Militia Votes	Demobilization	Total
1920-21	$277,308 93	$229,328 27	$5,554,191 63	$6,061,328 83
1921-22	320,738 54	264,425 91	2,657,838 97	3,243,003 42
	† 43,429 61	† 34,597 64	* 2,896,352 66	* 2,818,325 41

† Increase.
* Decrease.

The following detailed statements of expenditure and revenue will be found in Appendix "A":

(1) Appropriation Accounts Militia Votes, 1921-22.

(2) Militia Revenue, 1921-22.

(3) Comparative Statement of expenditure for ten years, 1912-13 to 1921-22.

(4) Expenditure on account of Demobilization Appropriation, 1921-22.

(5) Expenditure on account of War and Demobilization Appropriations, August, 1914, to march 31, 1922.

Volume of Work

Work in connection with expenditure during the war is still heavy and involves:—

(*a*) Adjustment of accounts with the Imperial Government for expenditure made by the Department on their behalf, including the reckoning of interest charges throughout the whole period.

(*b*) Collection of the value of sales of surplus stores.

(*c*) Settlement of the charges of the British Ministry of Shipping for return transportation of troops.

(*d*) Many other varied claims are still to be settled.

Transport and Freight Claims

Railway accounts received during the year have been numerous, though for smaller amounts than last year, due to demobilization being over. The outstanding accounts with all railway lines, March 31, 1922, aggregated $176,880.38.

During the year an adjustment of the claim of the British Ministry of Shipping with this Department was effected in London, England, with the assistance of a representative of this Branch. These claims have been outstanding for some time and by personal negotiation a satisfactory basis of charges was arrived at, involving a substantial reduction in the total amount as originally claimed.

Order in Council P.C. 179 and amending orders covering refunding of passage money to soldiers' dependents returning from overseas were cancelled by P.C. 4385, dated November 15, 1921. Refunds have since been made, as authorized by Privy Council, in individual cases.

Claims for loss and damage to shipments are continually made, as also applications for refund of unused portions of tickets, for which settlement is effected in due course.

Recoverable Accounts

A review of the work of this Section during the period covered by this Memorandum indicates that the volume remains practically the same as previously recorded; the efforts of the staff being mainly confined to answering Audit observations on accounts previously rendered, and in course of adjustment.

As the work embraces three different classes of accounts, viz., British and Foreign Governments, Canadian Government Departments, and Miscellaneous, a large amount of correspondence is involved, particularly with the War Office, Air Ministry, Admiralty, and Command Paymasters of Military and Naval Stations throughout the British possessions.

The reciprocal account between the Imperial Treasury and the Canadian Department of Finance is still in operation, and the War Office call for detailed covering vouchers from this Department as each debit entry goes through. The Imperial Government is being debited by the Finance Department with interest at the rate of 5½% on all outstanding accounts from the date the service was rendered to the date of final settlement.

Many of the observations raised by the Imperial authorities refer to transactions which took place during the early part of the War, and as all C.E.F. Units and personnel have long since been demobilized, there is much enquiry and research involved in obtaining the required information.

An indication of the volume of work may be obtained from the following figures:

British and Foreign Governments Recovered by cash or reciprocal account, year ending 31/3/22..	$2,750,804 40
Other Government Departments Recovered by cash or transfer warrant through Finance Department	$385,775 39

Surplus Stores

During the year 1921-22, collections were made on Surplus War Stores amounting to $150,883.76 and this amount placed to the credit of the Receiver General. In addition, the sum of $30,721.06 was collected representing the value of stores delivered and unpaid for in 1920-21.

Although this work has decreased considerably in volume, many adjustments and collections are now being dealt with.

Office Instructions

On the 1st of July, 1921, a system of formal written Office Instructions was installed. These instructions are issued from time to time to Heads of Sections and contain in a concise form, methods of procedure for the various routine operations.

In distinction from oral instructions, the benefits derived from such a system are obvious; a complete record is always at hand of the procedure to be adopted and also a sure method of fixing responsibility.

Monthly Reports

Monhtly written reports to the Deputy Minister were instituted on November 1, 1921.

Following is a table of information taken from these reports for the period November 1, 1921, to March 31, 1922:—

STATISTICS FROM MONTHLY REPORT

ROUTINE OPERATIONS

Staff	November	December	January	February	March
Pre-Audit Section—					
Expenditure audited	$1,219,305	$1,230,898	$1,196,018	$1,165,385	$1,270,904
Percentage cost	·0045	·0042	·0043	·0017	·0041
Transport Accounts—					
Number of accounts received	117	134	128	154	331
Amount	30,704	37,341	25,332	69,163	151,715
Number accounts paid	262	294	276	213	192
Amount	65,457	116,065	79,504	99,852	143,278
Disbursing Section—					
Number of general claims paid	681	702	695	504	740
Amount paid	141,320	203,375	174,024	166,792	224,604
Recoverable Accounts—					
British and Foreign, amount recovered	$42,339	315,037	88,842	520,071	33,109
Other Departments, " "	2,056	7,019	85,445	35,439	92,823
Surplus Stores—					
Amount collected	3,362	35,886	4,151	19,893	74,451
Other Department adjustments	10,738	8,024	12,687	7,963	7,813
Office Services—					
Telegrams and cables (Outward)	48	33	42	44	89
Ordinary letters (Outward)	1,131	1,215	1,244	1,318	1,072
" " (Inward)	948	1,019	1,093	848	1,028
Registered letters (Outward)	269	404	356	245	348
" " (Inward)	295	400	316	301	391
H.Q. files (Inward)	1,300	1,272	1,345	1,435	1,361
" " (Outward)	1,380	1,402	1,237	1,403	1,322
Vouchers checked, filed and passed to Auditor General	10,248	15,065	14,357	11,905	13,688

Cost Accounting

Beginning with the month of January, a cost accounting system was instituted in this Branch. The various overhead charges, such as rent and upkeep of premises; office supplies and repairs; salaries, etc., are apportioned each month over a unit of expenditure and revenue.

By using the same unit each month, representing the main function of the Branch, a percentage cost of administration is arrived at, comparable from month to month and indicating whether such costs are rising or falling. The following are the comparative percentage costs, by months, per $100.

January	$0.908
February	0.946
March	0.909

In addition to purely administrative costs, as above outlined, various comparative cost statements of disbursing by civil and military personnel have been made, as well as computations of costs of different Units of Permanent and Non-Permanent Active Militia. Assistance has also been given to other Branches of this Department in the preparation of the Monthly Cost Statement.

It is proposed to enlarge this phase of the work and institute a more ready method of compiling statistics and cost figures generally.

Reorganization

During the year, a Committee was appointed to reorganize the various Branches of the Department, on a peace basis. This Committee was composed of:—

One representative of the Civil Service Commission, two representatives of the Department as a whole (the Assistant Deputy Minister and a Chief Clerk).

One representative of the Branch being reorganized (the head of the Branch ex-officio).

The principal recommendations in regard to the Chief Accountant's Branch approved and put into effect were:—

1. That the establishment of the Branch, as indicated in chart form by the Committee, be adopted. The main principles upon which the chart was drawn up are:—
   - (*a*) The complete separation of the Accounting and Auditing Sections.
   - (*b*) The definite placing upon the Departmental Auditor of full responsibility for the audit of all payments made by the Department.
   - (*c*) The establishing of proper lines of responsibility.
   - (*d*) The relief of the Assistant Accountant from unnecessary detail, from which, so far, he had been unable to free himself.

2. That steps be taken to withdraw the handling of the Contingencies Vote from the Printing, Stationery and Contingencies Branch and to place it where it properly belongs, under the Chief Accountant.

3. That the Progress Report System already in operation, and the resultant monthly reports to the Deputy Minister, be maintained.

REPORT OF THE ASSISTANT DEPUTY MINISTER FOR THE FISCAL YEAR ENDING MARCH 31, 1922

Submitted herewith is a report of the work of the Registration Office and the Printing, Stationery and Contingencies Division.

(1) Registration Office

	1920-21		1921-22		Central Registry Decrease	Overseas Section, Decrease or Increase
	Central Registry	Overseas Section	Central Registry	Overseas Section		
Files charged out	523,629	64,150	380,611	113,925	143,018	+49,775*
Incoming files recorded or passed	871,871	541,073	596,734	410,187	275,137	−130,889
Files transferred to Daly Bldg	.....	.....	450,461	420,530	.....	.....
Files handled but not sent out	.....	633,885	.....	375,405	.....	−258,480
Loose papers received	398,814	498	326,538	33,507	72,276	+33,009*
Files created	51,932	143,889	50,164	112,493	1,768	−31,396
Estates files combined	.....	60,000	.....	.....	.....	.....
Total files handled	1,846,246	1,443,495	1,804,508	1,466,047		

*This increase is due to the transference from the Central Registry proper to the "Overseas Section" of files dealing with "Other Ranks" Canadian Expeditionary Force, formerly handled by the Central Registry. The Overseas Section has since been transferred to the control of the Directorate of Records.

(2) Printing, Stationery and Contingencies Division

Statistical statement showing work and expenditure by the Printing, Stationery and Contingencies Division:—

—	1920-21	1921-22	Increase or Decrease
Printing requisitions issued	526	593	67*
Stationery requisitions issued	1,527	1,513	14†
Proceeds of sales of military books	$38 68	$775 53	$736 85*
Expenditure for printing	69,665 41	92,613 15	22,947 74*a*
Expenditure for stationery	59,479 57	76,250 23	16,770 66*b*
Express and freight	7,571 70	10,743 47	3,171 77*c*

* Increase. † Decrease.

The increases in expenditure are due in part to (*a*) the post-war revision of Canadian Publications (*b*) the purchase of Imperial Publications revised since the war, and (*c*) the extra express and freight charges on these publications. There was also a substantial sum outstanding, which was not provided for in the appropriation for 1920-21, and which it was, therefore, necessary to pay out of the vote for 1921-22.

APPENDIX A

The following are statements for the fiscal year ending March 31, 1922, showing:

1. Appropriation accounts, 1921-22.
2. Militia and Defence revenue.
3. Comparative statement of expenditure for the ten years 1912-13 to 1921-22.
4. Demobilization appropriation expenditure 1921-22.
5. Expenditure on account of war and demobilization appropriations, August, 1914, to March 31, 1922.

STATEMENT No. 1.—Appropriation Accounts, 1921-22

Appropriation	Amount of grant	Expenditure	Grant unused	Grant exceeded
	$ cts	$ cts.	$ cts.	$ cts.
Allowances, Active Militia	120,000 00	119,362 51	637 49	
Annual Drill	1,500,000 00	1,159,712 44	340,287 56	
Cadet services	450,000 00	409,347 84	40,652 16	
Clothing and necessaries	264,346 00	264,338 92	7 08	
Contingencies	40,000 00	38,790 80	1,209 20	
Customs dues	40,000 00	29,734 76	10,265 24	
Departmental library	2,000 00	1,390 17	609 83	
Dominion arsenal, Lindsay	243,300 00	204,315 89	38,984 11	
Dominion arsenal, Quebec	428,300 00	428,292 06	7 94	
Engineer services and works	629,350 00	628,784 97	565 03	
Grants to Associations and bands	130,000 00	85,018 28	44,981 72	
Headquarters and district staffs	265,000 00	254,404 60	10,595 40	
Maintenance of military property	200,000 00	199,990 37	9 63	
Ordnance arms, lands, etc	75,000 00	74,987 20	12 80	
Permanent force	6,255,000 00	5,882,937 67	372,062 33	
Printing and stationery	105,000 00	100,479 91	4,520 09	
Royal Military College	378,000 00	351,968 65	26,031 35	
Salaries and wages	225,000 00	225,677 40		677 40
Schools of instruction	150,000 00	112,869 29	37,130 71	
Topographic surveys	45,000 00	39,956 55	5,043 45	
Transport and freight	200,000 00	199,814 64	185 36	
Training areas	30,000 00	2,360 35	27,639 65	
Warlike stores	197,054 00	199,375 74		2,321 74
Special Votes				
Canadian Battlefields Memorials Vote No 331	500,000 00	137,420 53	362,579 47	
Imperial War Graves Commission	905,316 80	522,115 19	383,201 61	
Civil pensions Vote No. 468	1,115 42	1,115 42		
Compensation, Mr. Edward Fitzgerald, Vote No. 403	100 00	100 00		
Funeral late Lt.-Gen. Sir Sam Hughes, K.C.B. Vote No. 405	2,200 00	1,813 08	386 92	
Total Militia Votes	13,381,082 22	11,676,475 23	1,707,606 13	2,999 14
Demobilization appropriation	6,977,380 00	7,916,359 67		938,979 67
Total	20,358,462 22	19,592,834 90	1,707,606 13	941,978 81
Paid by Statute				
Gratuities, Civil Service Act		161 65		
Casual Revenue		1,256 23		
Retirement Fund 1920		15,869 54		
Aid to Civil Power		593 31		
Pensions Revenue		388 12		
R. M. C. Revenue		1,846 96		
		20,115 81		

Properties sold	Balance of proceeds of sale brought forward from 1920-21	Expenditure 1921-22	Balance of proceeds of sale to be carried forward to 1922-23
Barracks Site, Toronto	1,999 99	Nil	1,999 99
St. Helen's Island, Montreal	19,783 10	Nil	19,783 10
Fort Osborne Barracks site, Winnipeg	62,947 27	Nil	62,947 27
	84,730 36	Nil	84,730 36

Statement No. 2.—Revenue, 1921-22

Sales of ammunition	$ 1,209 74	
Sales of stores and clothing (not including surplus war stores)	22,065 64	
Sales of books and maps, etc.	2,675 54	
Sales of cast horses	2,271 00	
Sales of military property, old buildings, scrap, etc.	8,570 65	
Sale of silver to mint	590 66	
Sales of medals and ribbons (lost and replaced)	10 56	
Rents of military properties	22,618 23	
Receipts for barrack damages	632 89	
Purchases of discharge	5,862 00	
Refunds in respect of previous year's expenditure	73,307 28	
Miscellaneous revenue	11 60	
		$139,825 79
Pensions 1901 Act deduction		112,411 83
Royal Military College Cadet fees and supplies		67,315 13
		$319,552 75
Premiums discount and exchange		806 94
Conscience money		20 86
Railway subsidies		357 99
Total		$320,738 54

STATEMENT No. 3.—Comparative Statement of Expenditure and Revenue for the Ten Years, 1912-13 to 1921-22

—	1912-13	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22
	$	$	$	$	$	$	$	$	$	$
Allowances, Active Militia	85,474	101,904	66,513	68,643	45,573	70,794	51,283	91,214	75,418	119,362
Annual Drill	1,719,257	1,830,034	1,875,944					34,059	481,027	1,159,712
Cadet Services	93,723	392,207	327,679	84,972	80,311	90,771	68,770	74,414	230,288	409,348
Clothing and Necessaries	508,788	699,572	510,810		39,191				31,411	264,339
Contingencies, including Guards of Honour, Escorts and Salutes	47,674	49,957	36,557	31,670	23,214	16,344	5,338	8,762	38,461	38,791
Customs Dues	38,424	47,630	115,791	26,004	68,786	2,212			19,788	29,735
Departmental Library	1,010	1,055	1,113	985	641	615	1,043	974	846	1,390
Dominion Arsenals	325,863	358,315	265,262	299,678	29,924				637,423	632,608
Engineer Services	791,895	1,452,729	1,111,196	690,755	395,895	364,529	304,144	319,486	575,518	628,785
Grants towards construction of City Regimental Armouries	12,000									
Grants to Associations and Bands	64,315	79,506	73,605	47,878	7,981	10,258	2,549	27,328	64,536	85,018
Gratuities and Compassionate Allowances	2,170	4,300	15,190	500			1,002	3,326		
Maintenance of Military Properties	88,925	107,214	209,231	175,053	164,166	173,344	101,352	120,962	221,047	199,990
Pay of Inspector General and Military Members of Militia Council (Statutory)	21,600	21,600	15,161	18,450	18,296	18,152	18,010	18,010		
Pay of Headquarters Staff	78,617	74,002	72,050	74,956	84,766	93,998	103,154	127,844	292,831	254,405
Pay of Division and District Staffs	115,844	123,772	107,410	109,241	123,536	112,397	113,693	161,599		
Permanent Force Pay, Provisions and Supplies	2,200,183	2,198,453	2,114,493	2,116,245	2,396,183	2,297,228	1,947,304	3,088,691	5,705,736	5,882,938
Printing and Stationery	59,828	72,209	69,880	70,000	70,000	69,871	61,667	52,391	75,206	100,480
Royal Military College	131,241	149,039	153,987	135,685	147,576	162,293	201,885	219,160	321,309	351,969
Salaries and Wages of Civil Employees	160,700	197,823	243,936	232,797	205,801	232,913	210,066	197,459	291,741	225,677
Schools of Instruction	77,765	97,847	164,609	178,898	81,384	7,899			21,958	112,869
Topographical Survey	35,055	39,059	35,038	25,440	21,274	31,406	31,082	40,522	45,125	39,956
Transport and Freight	175,034	199,247	208,774	60,567	43,923	41,306	16,698	24,854	315,443	199,815
Warlike Stores	683,080	703,375	496,867		15,753				361,303	199,376
Training Areas			234,592	233,085	224,623	68,838	4,643	5,041	10,612	2,360
Miscellaneous Small Votes	17,202	6,508				22,670	190,371	15,731	172,001	3,029
Ordnance, Ammunition, Tents, Wagons, and Equipment, generally, excepting Clothing, Saddlery and Harness	572,486	967,804	593,167	4,084	57,504	6,058	9,752	1,278	69,597	
Saddlery and Harness	942	103,732	146,066							
Clothing—Reserve Stock and outfitting new suits	100,000	217,419	219,077							74,987
Ross Rifles, spare parts, bayonets, scabbards, arm chests and inspection	552,073	640,613	478,543							
Lands and construction of Rifle Ranges	341,208	51,237	29,216							
Total Ordnance, Equipment, Lands, etc	1,566,709	1,980,805	1,466,069	4,084	57,504	6,058	9,752	1,278	69,597	74,987
Consolidated Revenue, Workmen's Compensation Act							1,148	1,411		
Total Militia Expenditure	9,112,376	10,998,162	9,991,817	4,681,502	4,301,785	3,887,838	3,444,954	4,634,516	10,058,625	11,016,939

STATEMENT No. 3.—Comparative Statement of Expenditure and Revenue for the Ten Years, 1912-13 to 1921-22.—*Concluded.*

	1912-13	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22
	$	$	$	$	$	$	$	$	$	$
War and Demobilization Expenditure			53,176,614	160,433,416	298,291,031	316,669,785	377,120,138	323,360,987	16,229,764	7,916,360
Canadian Battlefields Memorials										137,421
Imperial War Graves Commission										522,115
Aid to Civil Power (Statutory and recoverable from Municipalities)	78	187,857	68,800							593
Toronto Barracks, Special Account	148,889	45	87,768	25					141	
Winnipeg Barracks, Special Account	137,053									
Montreal Barrack Site	180,000		217							
Transferred from Public Works Department	940	221,849	19,722							
Civil Government Salaries	146,718	157137	168,545	172,534	173,798	183,448	189,578	202,459	212,732	551,991
Civil Government Contingencies	22,029	27,997	20,216	28,351	19,488	3,199	18,255	18,996	19,837	25,968
Total Civil Government	168,747	185,134	188,761	200,885	193,286	186,647	207,833	221,455	232,569	577,959
Revenue Received—										
Militia	51,359	36,641	64,831	192,300	90,164	18,228	35,955			
Casual	2,691	1,790	1,625	41,318	11,949	2,072	3,795	87,867	86,815	141,012
Royal Military College	36,785	36,818	32,047	35,142	41,646	39,177	54,428	53,599	70,107	67,315
Pension Act, 1901	28,393	30,714	27,282	23,513	25,495	26,877	23,841	47,979	120,387	112,412
Fines and Forfeitures								5,375		
Total Revenues	119,228	105,962	125,785	292,273	169,254	86,354	118,019	194,820	277,309	320,739

STATEMENT No. 4.—Demobilization Appropriation.—Statement of Expenditure for the Year Ended March 31, 1922

Particulars	Debits	Credits
	$ cts	$ cts.
Clothing (except boots)		11,037 80
Ross Rifle Co.—Expropriation		9,721 01
Stores (furniture, bedding, utensils, etc.)		201,308 90
Compensation, Ottawa Car Manufacturing Co., Ltd	312,731 99	
Debits	312,731 99	222,067 71
Credits	222,067 71	
Total for Equipment	90,664 28	
Borden Camp and Long Branch—Land and Buildings		1,265 09
Total for Land and Buildings		1,265 09
Pay and allowances (includes subsistence, rations and assigned pay)	326,587 70	
Separation allowances	82,874 77	
War service gratuities	294,815 91	
Engineer services and works		5,146 09
Drugs and surgical instruments		15,052 42
Medical and dental services	7,586 78	
Travelling and transport (ocean)	1,220,585 60	
Travelling and transport (land)	359,199 22	
Forage and stabling	16 17	
Pay of civil employees	771,644 78	
Rent, water, fuel and light	24,930 90	
Fuel allowance, Permanent Active Militia P.C. 171, dated January 31, 1921	179,807 34	
Funeral expenses	924 67	
Telegrams, telephones (including rental) cablegrams and postage	49,782 10	
Printing and stationery	24,473 40	
Legal expenses	25,135 39	
Recruiting expenses	745 50	
Remounts		1,328 46
Laundry, Manitoba Military Hospital	5,948 09	
Conservancy and contingencies	60,243 36	
Grants to N.P. active militia on re-organization	23,700 00	
McGill Medical Museum	10,000 00	
War medals	419,133 66	
Advertising	666 62	
Difference in exchange and redemption of British money	4,414 14	
Premiums on bonds	65 64	
Soldiers' dependents—Transportation		8,321 11
British and foreign recoverable		1,011,954 60
Debits	4,093,281 74	1,041,802 68
Credits	1,041,802 68	
Total Miscellaneous Services	3,051,479 06	
Dominion Iron and Steel Corporation, Ltd.—Compensation—Marine and Fisheries Department	3,000,000 00	
Cost of transporting air craft from England—Air Board	112,723 14	
Hire of Steamships Empress of Asia and Empress of Russia—Marine and Fisheries Department	1,609,321 01	
Interment operations—Prisoners of war—Secretary of State	53,437 27	
	4,775,481 42	
Net debits	7,917,624 76	
Net credits	1,265 09	
Total for year	7,916,359 67	
Expended prior to April 1, 1921	1,545,281,734 93	
Total	1,553,198,094 60	

STATEMENT No. 5.—War and Demobilization Expenditure, August, 1914, to March 31, 1922

April,	1921	$ 91,504 73
May,	1921	178,281 26
June,	1921	207,290 86
July,	1921	191,511 90
August,	1921	305,045 32
September,	1921	587,101 18
October,	1921	242,515 55
November,	1921	218,528 58
December,	1921	1,255,488 75
January,	1922	43,138 36
February,	1922	3,301,990 56
March,	1922	1,293,962 62
Total April 1, 1921, to March 31, 1922		$ 7,916,359 67
Total August, 1914, to March, 1921		1,545,281,734 93
		$1,553,198,094 60

APPENDIX B

The following are statements for the fiscal year ending March 31, 1922, showing:—

1. Allowances paid to the Active Militia in the various districts.

2. Statement of expenditure by stations on account of pay and allowances of the Permanent Force.

3. Statement of expenditure on account of pay and allowances of officers and warrant officers of the Permanent Force.

4. Statement of expenditure on account of pay and allowances of officers and warrant officers of the Permanent Force with details of expenditure by stations.

5. Statement of expenditure on account of pay and allowances of N.C.O.'s and men of the Permanent Force.

6. Statement of expenditure on account of pay and allowances of N.C.O.'s and men of the Permanent Force, with details of expenditure, by stations.

STATEMENT No. 1.—Allowances paid to Active Militia, in the various Districts during the fiscal year 1921-22

Military Districts	Command Pay and Drill Instruction	Care of Arms	Postage and Stationery	Signallers Gratuities, Bonuses, Musketry Prizes and Miscellaneous	Efficiency Grants C.O.T.C.	Refund for Stores charged as Deficient or Returned	Gross Amount	Less Deductions and Deficiencies	Net Expenditure
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Military District No. 1	5,745 01	1,767 69	1,517 00	550 15			9,579 85	117 69	9,462 16
" " 2	20,293 56	5,047 31	5,007 90	1,474 53			31,823 30		31,823 30
" " 3	9,292 93	2,516 04	1,737 98	1,296 00			14,842 95		14,842 95
" " 4	8,347 10	2,295 27	1,884 00	1,513 60			14,039 97		14,039 97
" " 5	3,603 85	1,919 98	1,152 35	659 00			7,335 18		7,335 18
" " 6	5,223 37	1,616 94	1,225 60	562 10		1,314 30	9,942 31		9,942 31
" " 7	2,132 46	343 31	593 42	580 00		1,733 52	5,382 71	56 47	5,326 24
" " 10	4,207 47	1,604 16	1,062 00	297 00		420 34	7,590 97		7,590 97
" " 11	3,018 80	1,200 00	1,220 55	338 00		341 70	6,119 05		6,119 05
" " 12	3,061 17	1,517 48	433 50	695 00		271 52	5,978 67		5,978 67
" " 13	2,878 05	900 00	944 80	796 56		1,382 30	6,901 71		6,901 71
Total	67,803 77	20,728 18	16,779 10	8,761 94		5,463 68	119,536 67	174 16	119,362 51

STATEMENT No. 2.—Showing expenditure by Stations on account of Pay and Allowances of the Permanent Force for the year 1921-22

Station	Strength all ranks March 31, 1921	Strength all ranks March 31, 1922	Pay and Allowances Officers and Warrant Officers	Pay and Allowances Non-Commissioned Officers and Men	Total Pay and Allowances
			$ cts.	$ cts.	$ cts.
London, Ont.	264	251	106,562 87	202,921 93	309,484 80
Toronto, Ont.	579	514	226,691 57	396,496 48	623,188 05
Kingston, Ont.	453	412	183,687 02	279,524 89	463,211 91
Ottawa, Ont.	393	360	333,769 67	344,901 40	678,671 07
Montreal, Que.	319	310	111,925 58	228,099 52	340,025 10
Quebec, Que.	466	408	160,411 86	321,684 92	482,096 78
Halifax, N.S.	659	590	269,438 04	422,806 74	692,244 78
St. John, N.B.	83	65	45,181 22	60,690 64	105,871 86
Winnipeg, Man.	507	480	186,889 22	330,502 26	517,391 48
Victoria, B.C.	402	392	166,324 84	280,031 00	446,355 84
Regina, Sask.	64	55	33,517 47	50,377 19	83,894 66
Calgary, Alta.	260	194	83,787 85	150,414 01	234,201 86
Total	4,389	4,031	1,908,187 21	3,068,450 98	4,976,638 19

STATEMENT No. 3.—Statement of Expenditure on Account of Pay and Allowances of Officers and Warrant Officers of the Permanent Force for the Year Ending March 31, 1922

DETAILS OF EXPENDITURE BY CORPS

Corps	Pay		Allowances				Total Allowances	Total Pay and Allowances	Credits to Public and Refunds	Net Expenditure Amount paid
	Regimental	Abroad	rters	Rations	Other	Dependents				
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	cts.	$ cts.	$ cts.
Royal Canadian Dragoons	54,747 60		3,131 33	4,918 19		6,783 18	14,832 70	69,580 30	5 34	69,574 96
Lord Strathcona's Horse (R.C.)	49,350 35		3,866 46	4,451 80	0 20	5,933 20	14,251 66	63,602 01	29 43	63,572 58
Royal Canadian Artillery	20,085 82		2,025 43	1,385 38	602 00	2,370 93	6,383 74	26,469 56		26,469 56
Royal Canadian Horse Artillery	82,441 26		6,049 61	8,140 76		11,163 72	25,354 09	107,795 35	152 36	107,642 99
Royal Canadian Garrison Artillery	113,407 54		8,103 48	11,656 46	73 43	15,864 46	35,697 83	149,105 37	208 82	148,896 55
Royal Canadian Machine Gun Brigade	56,615 74		4,223 51	5,545 75	32 30	6,399 84	16,201 40	72,817 14	165 88	72,651 26
Royal Canadian Engineers	157,547 71		11,242 10	13,992 67	378 96	21,382 44	46,996 17	204,543 88	169 53	204,374 35
Royal Canadian Regiment	93,621 84		5,797 64	7,714 71	607 88	11,408 11	25,528 34	119,150 18	88 94	119,061 24
Princess Patricia Canadian Light Infantry	67,664 11		1,889 79	5,209 66	35 86	7,595 71	14,731 02	82,395 13	37 07	82,358 06
The Royal 22nd Regiment	32,285 89		948 63	3,073 78	22 04	2,567 69	6,612 14	38,898 03	167 11	38,730 92
Royal Canadian Army Service Corps	125,237 06		10,079 70	10,896 41	27 77	18,454 18	39,458 06	164,695 12	174 62	164,520 50
Royal Canadian Army Medical Corps	95,361 13		8,244 41	7,680 13	0 04	9,209 80	25,134 38	120,495 51	256 05	120,239 46
Royal Canadian Army Veterinary Corps	28,675 33		3,321 54	2,313 46	0 02	3,999 94	9,634 96	38,310 29		38,310 29
Royal Canadian Ordnance Corps	180,460 48		16,451 49	18,652 44	3 67	30,027 63	65,135 23	245,595 71	512 95	245,082 76
Royal Canadian Army Pay Corps	99,101 47		9,114 69	9,001 75	0 08	13,650 67	31,767 19	130,868 66	197 52	130,671 14
Corps of Military Staff Clerks	78,851 12		7,742 79	9,166 28		12,363 00	29,272 07	108,123 19	109 43	108,013 76
Royal Canadian Corps of Signals	18,612 98		1,838 15	1,491 68		2,316 66	5,646 49	24,259 47	89 77	24,169 70
Canadian Warfare School	16,619 54		1,957 73	1,355 69		2,322 77	5,636 19	22,255 73	21 19	22,234 54
Instructional Cadre	80,669 21		6,654 90	9,487 92		13,467 99	29,610 81	110,280 02	132 54	110,147 48
Miscellaneous	10,898 56		333 28	133 28		99 99	566 55	11,465 11		11,465 11
Total	1,462,254 74		113,016 66	136,268 20	1,784 25	197,381 91	448,451 02	1,910,705 76	2,518 55	1,908,187 21

STATEMENT No. 4.—Statement of Expenditures on Account of Pay and Allowances of Officers and Warrant Officers of the Permanent Force for the Year Ending March 31, 1922

DETAILS OF EXPENDITURE AT EACH STATION

Stations	Pay		Allowances				Total Allowances	Total Pay and Allowances	Credits to Public and Refunds	Net Expenditure Amount paid
	Regimental	Abroad	Quarters	Rations	Other	Dependents				
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
London, Ont	81,778 25		5,772 03	7,435 19	129 94	11,608 73	24,945 89	106,724 14	161 27	106,562 87
Toronto, Ont	171,820 33		14,711 34	17,012 47	10 00	23,220 59	54,954 40	226,774 73	83 16	226,691 57
Kingston, Ont	138,257 92		11,759 02	14,204 39	37 36	19,664 59	45,665 86	183,923 78	236 76	183,687 02
Ottawa, Ont., and Course of Instruction, England	249,957 70		26,493 00	23,641 41	1,400 00	32,380 71	83,915 12	333,872 82	103 15	333,769 67
Montreal, Que	88,316 50		5,897 55	7,861 82	34 94	9,834 57	23,628 88	111,945 38	19 80	111,925 58
Quebec, Que	126,510 70		5,297 63	12,474 23	69 30	16,531 41	34,372 57	160,883 27	471 41	160,411 86
Halifax, N.S	206,686 58		15,450 47	17,945 11	3 67	29,706 38	63,105 63	269,792 21	354 17	269,438 04
St. John, N.B	33,930 22		2,895 91	3,537 64		4,992 15	11,425 70	45,355 92	174 70	45,181 22
Winnipeg, Man	149,459 05		6,575 55	12,267 91		19,117 35	37,960 81	187,419 86	530 64	186,889 22
Victoria, B.C	128,417 65		8,890 98	11,737 14	98 12	17,446 03	38,172 27	166,589 92	265 08	166,324 84
Regina, Sask	24,794 10		2,573 42	2,383 63		3,799 86	8,756 91	33,551 01	33 54	33,517 47
Calgary, Alta	62,325 74		6,699 76	5,767 26	0 42	9,079 54	21,546 98	83,872 72	84 87	83,787 85
Total	1,462,254 74		113,016 66	136,268 20	1,784 25	197,381 91	448,451 02	1,910,705 76	2,518 55	1,908,187 21

STATEMENT No. 5.—Statement of Expenditure on Account of Pay and Allowances of Non-Commissioned Officers and Men of the Permanent Force for Year Ending March 31, 1922

DETAILS OF EXPENDITURE BY CORPS

Corps	Pay		Allowances				Total allowances	Total pay and allowances	Credits to public and refunds	Net expenditure amount paid
	Regimental	Abroad	Quarters	Rations	Other	Dependents				
	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Royal Canadian Dragoons	182,573 26		5,929 35	10,792 00	237 56	11,948 33	28,907 24	211,480 50	4,528 70	206,951 80
Lord Strathcona's Horse (R.C.)	134,715 72		4,012 40	6,182 50	168 34	8,210 62	18,573 86	153,289 58	4,852 92	148,436 66
Royal Canadian Horse Artillery	181,115 19		7,267 05	11,611 00	212 96	12,379 90	31,470 91	212,586 10	6,786 09	205,800 01
Royal Canadian Garrison Artillery	247,967 19		8,443 65	16,059 50	142 41	21,169 70	45,815 26	293,782 45	2,915 75	290,866 70
Royal Canadian Machine Gun Brigade	92,225 88		2,663 50	4,155 50	89 49	5,311 59	12,220 08	104,445 96	3,216 03	101,229 93
Royal Canadian Engineers	153,795 83		8,780 10	12,025 50	62 95	15,552 33	36,420 88	190,216 71	1,490 40	188,726 31
Royal Canadian Regiment	278,985 76		3,135 30	9,194 50	129 07	18,066 91	30,526 38	309,512 14	7,980 00	301,532 14
Princess Patricia Canadian Light Infantry	180,094 80		3,368 05	5,611 00	182 12	12,111 19	21,272 36	201,367 16	4,531 05	196,836 11
22nd Regiment, The Royal	126,587 25		4,944 10	7,833 50	100 93	7,042 93	19,921 46	146,508 71	4,389 36	142,119 35
Royal Canadian Army Service Corps	218,193 73		21,798 85	30,502 50	521,86	32,224 06	85,047 27	303,241 00	2,863 64	300,377 36
Royal Canadian Army Medical Corps	53,730 79		6,359 50	8,533 00		8,408 62	23,301 12	77,031 91	123 02	76,908 89
Royal Canadian Army Veterinary Corps	5,505 06		597 45	849 00		601 35	2,047 80	7,552 86	136 03	7,416 83
Royal Canadian Ordnance Corps	331,408 79		43,451 86	59,938 25	10 07	54,513 72	157,913 90	489,322 69	1,871 18	487,451 51
Royal Canadian Ordnance Corps—Caretakers	51,794 17		5,987 05	13,114 00		12,506 54	31,607 59	83,401 76	98 93	83,302 83
Royal Canadian Army Pay Corps	48,044 20		5,753 30	8,085 00		8,398 78	22,237 08	70,281 28	220 75	70,060 53
C.M.S.C. "A" Section	76,325 77		9,100 00	12,798 00		11,771 41	33,669 41	109,995 18	487 12	109,508 06
" "B" "	34,871 81		5,527 20	7,643 00		8,057 21	21,227 41	56,099 22	45 54	56,053 68
" "R" "	30,455 46		3,996 65	5,396 50		5,356 22	14,749 37	45,204 83	134 72	45,070 11
Instructional cadre	22,590 95		1,847 65	2,778 50		2,750 69	7,376 84	29,967 79	471 46	29,496 33
Canadian Warfare School	965 25		119 70	171 00		187 87	478 57	1,443 82		1,443 82
Royal Canadian Corps of Signals	13,833 40		1,738 80	2,364 00		1,041 29	5,144 09	18,977 49	115 47	18,862 02
Total	2,465,780 26		154,821 51	235,637 75	1,858 36	257,611 26	649,928 88	3,115,709 14	47,258 16	3,068,450 98

STATEMENT No. 6.—Statement of Expenditure on account of Pay and Allowances of Non-Commissioned Officers and Men of the Permanent Force for the Year Ending March 31, 1922

DETAILS OF EXPENDITURE AT EACH STATION

Stations	Pay		Allowances				Total allowances	Total pay and allowances	Credits to public and refunds	Net expenditure amount paid
	Regimental	Abroad	Quarters	Rations	Other	Dependents				
	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
London, Ont.	162,537 80		6,660 50	15,836 50		20,088 60	42,585 60	205,123 40	2,201 47	202,921 93
Toronto, Ont.	321,560 80		20,445 00	33,825 00	274 86	29,627 65	84,172 51	405,733 31	9,236 83	396,496 48
Kingston, Ont.	218,808 51		16,512 30	25,526 50	162 86	23,623 14	65,824 80	284,633 31	5,108 42	279,524 89
Ottawa, Ont.	226,324 76		31,854 10	45,855 00		41,367 67	119,076 77	345,401 53	500 13	344,901 40
Montreal, P.Q.	189,279 95		10,057 45	15,873 00	157 40	15,970 79	42,058 64	231,338 59	3,239 07	228,099 52
Quebec, P.Q.	261,391 06		16,476 76	25,468 00	239 97	23,342 05	65,526 78	326,917 84	5,232 92	321,684 92
Halifax, N.S.	362,772 49		12,841 65	14,955 00	581 57	37,550 29	65,928 51	428,701 00	5,894 26	422,806 74
St. John, N.B.	40,534 80		5,861 10	8,858 75		5,667 63	20,387 48	60,922 28	231 64	60,690 64
Winnipeg, Man.	296,901 67		7,916 35	12,406 00	273 18	21,916 69	42,512 22	339,413 89	8,911 63	330,502 26
Victoria, B.C.	235,213 69		11,608 55	15,841 00	79 76	20,803 50	48,332 81	283,546 50	3,515 50	280,031 00
Regina, Sask.	34,144 16		4,942 35	6,981 50		4,764 93	16,688 78	50,832 94	455 75	50,377 19
Calgary, Alta.	146,310 57		9,645 40	14,211 50	88 76	12,888 32	36,833 98	153,144 55	2,730 54	150,414 01
	2,465,780 26		154,821 51	235,637 75	1,858 36	257,611 26	649,928 88	3,115,709 14	47,258 16	3,068,450 98

APPENDIX C

REPORT OF THE INSPECTOR GENERAL FOR THE FISCAL YEAR ENDING MARCH 31, 1922

PERMANENT FORCE

The Permanent Force is in a satisfactory condition throughout.

Suitable Barracks are badly needed in the vicinity of Montreal, Toronto and Calgary for the troops at those stations.

ACTIVE (NON-PERMANENT) MILITIA

Units Trained as City Corps.—Reorganization has proceeded along good and sound lines and in view of the very limited period of training authorized for the fiscal year the results obtained might be considered generally as satisfactory.

A general improvement in efficiency was noted. Discipline and interior economy were satisfactory; during 1920-21, the period of training was too short to admit of anything beyond elementary work being carried out.

The following Units are considered worthy of special mention for the progress they made during the training period and the efficiency attained at its termination:—

Argyll and Sutherland Highlanders, Hamilton, Ont.
The 48th Highlanders, Toronto, Ont.
The Ottawa Regiment, Ottawa, Ont.
Governor General's Foot Guards, Ottawa, Ont.
The Royal Highlanders of Canada, 1st and 2nd Battalions, Montreal, P.Q.
The Royal Montreal Regiment, Montreal, P.Q.
The 8th Battery—12th Brigade, Moncton, N.B.
The 2nd Battery—1st Brigade, Ottawa, Ont.
The 9th Battery—3rd Brigade, Toronto, Ont.

Units Trained as Rural Corps.—Efficiency of Units varied from very good to poor. Niagara was the only camp held in 1921 at which any considerable number of troops were trained. The Units while generally under strength had reorganized along good and satisfactory lines; the following being particularly noticeable for strength and efficiency:—

The Simcoe Foresters.
The Grey Regiment.
The York Rangers.

I was much impressed with the efficiency of the small camp at Pointe aux Trembles, P.Q., under the Command of Colonel Dubuc, D.S.O. Le Regiment de Chateauguay, commanded by Lieut.-Colonel J. H. Chabelle, M.C., was up to strength, complete in personnel. The majority of the Officers had overseas service and the battalion had attained an efficiency which, in view of the short training period, was surprising.

Rural Battalions in M.D. No. 5 were not sufficiently reorganized to train as Units, and the Camp at Lévis, P.Q., consisted of Officers and Non-Commissioned Officers only.

SCHOOL OF INSTRUCTION

The attendance of Non-Permanent Active Militia at Royal Schools of Instruction at Permanent Force Depots was fair only, some two hundred Officers and three hundred other ranks having attended courses varying from two to six weeks' duration.

There was a marked improvement in the attendance at Provisional Schools, the total of some three hundred Officers and seven hundred other ranks having qualified at these Schools which were held at convenient local Headquarters of Units.

OFFICERS TRAINING CORPS

Officers Training Corps are progressing satisfactorily.

CADET CORPS

Cadet Corps continued to increase in the number and strength of Units. A short light rifle is badly needed, the service one being too long and heavy.

SUMMARY

Considerable progress has been made during the past year notwithstanding the shortness of the training period on account of which elementary work only could be carried out.

The efficiency of the Militia is still entirely dependent on Officers and Non-Commissioned Officers with overseas service who, while on account of the short training period are not now carrying out anything beyond elementary work, would be in a position to give advanced instruction to their Units should occasion arise.

APPENDIX D

REPORT OF THE SUPERINTENDENT, DOMINION ARSENAL, QUEBEC, FOR YEAR ENDING MARCH 31, 1922

EMPLOYEES

The average number of employees throughout the year was 258.

FINANCIAL STATEMENTS

1. Appropriation and Expenditure.
2. Statement of Moneys Received and Deposited to credit of Receiver General.
3. Distribution of Disbursements.
4. Statement of Assets and Liabilities.
5. Capital Account.
6. Statement of Production and Costs.
7. Reconciliation Statement.

Appropriation and Expenditure

Total letter of credit	$464,000 00		
Balance lapsed unexpended	6,696 74		
Gross expenditure at Quebec		$457,303 26	
Gross expenditure at Ottawa		53,699 96	
		$511,003 22	
Less refunds to current year's expenditure		726 74	
Expenditure charged to Dominion Arsenal, Quebec vote			$428,292 06
Expenditure charged to bonus vote No. 367			81,520 01
Expenditure charged to cutoms dues vote			464 41
		$510,276 48	$510,276 48

Statement of Moneys Received and Deposited to Credit of Receiver General

Petty cash	$ 50 00		
Unused advance for travelling expenses	101 26		
The Grasselli Chemical Company	203 60		
R.C.G.A. for medals	194 00		
Refund for cartage	49 00		
The Atlas Crucible Steel Company	5 56		
Provincial treasurer	3 00		
S.E.O., M.D. No. 5	120 32		
		$ 726 74	
Receipts from sales of scrap		2,184 56	
Receipts from sales of finished goods		231 00	
Returned barrels and other refunds		716 27	
Amount credited to current year's expenditure, (Dominion Arsenal vote)			$ 726 74
Amount credited to casual revenue			3,131 83
		$3,858 57	$3,858 57

Distribution of Disbursements, 1921-22

Dominion Arsenal, Quebec, vote—		
Wages	$232,130 45	
Cordite	47,302 91	
Salaries	32,634 99	
Other materials, including oils, hardware, castings, acids, factory and chemical supplies	25,262 26	
Power and light (including gas purchased)	15,763 25	
Fuel	15,326 92	
Senior engineer officer, M.D. No. 5, for wages and material (repairs re fire loss)	10,700 00	
Lumber	7,692 19	
Copper	7,250 36	
Freight, transport (except cartage) and travelling expenses	7,192 52	
Lead	5,917 24	
Bandoliers	5,402 33	
Cartage	3,595 85	
Steel	3,136 54	
Equipment	2,158 91	
Aluminum	2,129 49	
Water	1,800 00	
Telegrams, telephones, postage, printing and stationery	1,758 65	
Belting	510 07	
Machinery	367 00	
Miscellaneous	260 13	
		$428,292 06
Customs dues vote		464 41
Bonus vote No. 367—		
Bonus payments to employees 1920-21	31,536 44	
1921-22	49,983 57	81,520 01
		$510,276 48

Statement of Assets and Liabilities, March 31, 1922

	Assets	Liabilities
Accounts receivable	$ 393 64	
Material in stores	153,549 77	
Inventory of work in process and finished goods	306,580 57	
Buildings	243,010 24	
Machinery	209,653 28	
Equipment, general	16,800 20	
Belting	1,304 35	
Gauges	7,500 00	
Tools, loose	33,327 77	
Office furniture and fixtures	2,088 39	
Accounts payable		$ 16,204 06
Surplus, Dept. of Militia and Defence		958,004 15
	$974,208 21	$974,208 21

Capital Account, 1921-22

To Balance for Net Capital, April 1, 1921—			By Depreciation in 1921-22—		
Buildings	$ 229,336 54		Buildings	$ 7,027 32	
Machinery	222,275 61		Machinery	21,536 17	
Belting	1,538 66		Belting	751 67	
Equipment, general	18,643 72		Equipment, general	5,234 28	
Office furniture and fixtures	2,053 49		Office furniture and fixtures	106 10	
Tools, loose	8,751 34		Tools, loose	1,616 71	
Gauges	7,500 00				$ 36,272 25
		$ 490,099 36			
To Accruement in 1921-22—			By Balance Account for Net Capital, March 31, 1922—		
On Buildings	$ 20,701 02		Buildings	$ 243,010 24	
Machinery	8,913 84		Machinery	209,653 28	
Belting	517 36		Belting	1,304 35	
Equipment, general	3,390 76		Equipment, general	16,800 20	
Office furniture and fixtures	141 00		Office furniture and fixtures	2,088 39	
Tools, loose	26,193 14		Tools, loose	33,327 77	
		$ 59,857 12	Gauges	7,500 00	
					$ 513,684 23
		$ 549,956 48			$ 549,956 48

	Production			Net Cost	Cost of Living Bonus	Rate Plus Cost of Living Bonus	Per	Gross Cost
	Quantity	Rate	Per					
DELIVERIES OF FINISHED GOODS		$		$ cts.	$ cts.	$ cts.		$ cts.
Boxes, ammunition, S.A., 1,000 rounds, ·303", in chargers	5,479	3·299	each	18,077 72	1,664 00	3·603	each	19,741 72
Boxes, ammunition, Q.F. 18-pr. Mk. III-a. New	83	5·964	"	494 98	45 50	6·513	"	540 48
Boxes, ammunition, Q.F. 18-pr. C 151 Mk. 1	252	9·94	"	2,504 88	230 70	10·86	"	2,735 58
Boxes, ammunition, ·22" calibre	284	0·965	"	274 06	25 30	1·054	"	299 36
Cartridges, S.A. Ball ·303", Cordite, Mk. VII	6,901,866	49·367	1,000	340,739 33	31,879 41	53·988	1,000	372,618 74
Cartridges, S.A. Ball ·303", Cordite, Mk. VII, D.R.A.	101,489	56·90	"	5,774 73	531 00	62·132	"	6,305 73
Cartridges, S.A. Blank ·303"	500,800	30·642	"	15,346 04	1,412 50	33·47	"	16,758 54
Cartridges, S.A. Dummy ·303", Mk. VII	200,200	36·51	"	7,309 25	672 20	39·87	"	7,981 45
Cartridges, ·22", Long Rifle	3,148,700	11·83	"	37,247 62	3,428 00	12·82	"	40,675 62
Cartridges, ·22", Long Rille, D.R.A	100,600	13·470	"	1,355 05	124 75	14·71	"	1,479 80
Cartridges, Q.F. 18-pr. Blank	1,007	8·002	each	8,057 53	741 00	8·74	each	8,798 53
Cartridges, Q.F. 18-pr. Shrapnel, Mk. I, Plugged, Cordite	2,003	15·79	"	31,607 49	2,910 00	17·231	"	34,517 49
Cartridges, Filled, B.L. or B.L.C., 15-pr., 1 lb. 4 oz. Blank	5,889	0·624	"	3,676 76	338 20	0·682	"	4,014 96
Cartridges, Q.F. 3-pr., Cordite M.D., Practice, Mk. XII	2,037	8·951	"	18,234 41	1,677 50	9·78	"	19,911 91
Cartridges, Q.F. 6-pr., Cordite, M.D., Practice	2,024	10·663	"	21,581 67	1,984 00	11·643	"	23,565 67
Cartridges, Q.F. 18-pr., Filling and Re-packing with Dominion Arsenal New Cases	381	7·40	"	2,819 48	259 20	8·08	"	3,078 68
Clips, Q.F. 18-pr., New	577	0·15	"	86 55	7 86	0·1635	"	94 41
Discs, Marking, Butt, (Brass)	10,000	30·234	1,000	302 34	27 82	33·016	1,000	330 16
Mandrills, Seabbard, Sword Bayonet, Patt. '07 (Castings only)	123	1·386	each	170 49	15 68	1·513	each	186 17
Miscellaneous Services for Chief Inspector of Ammunition				1,211 61	111 50			1,323 11
Primers, Q.F. 18-pr. No. 1, Mk. II, Filled	450	1·377	each	619 91	57 00	1·504	each	676 91
Primers, Q.F. 3-pr. and 6-pr., Mk. II, Filled	2,300	1·398	"	3,215 39	296 00	1·526	"	3,511 39
Puffs, Powder, 4 drs. R.F.G. 2	2,004	0·196	"	393 03	36 12	0·2141	"	429 15
Puffs, Powder, R.L.G. 2	2,008	0·0775	"	155 51	14 30	0·0845	"	169 81
REPAIRS								
Boxes, ammunition, S.A. 1,000 rounds, ·303", in chargers	1,521	2·495	each	3,795 19	349 10	2·725	each	4,144 29
Boxes, ammunition, Q.F. 18-pr., Mk. II	259	2·764	"	715 83	65 82	3·018	"	781 65
Boxes, ammunition, Q.F. 4·7", I to IV Guns	151	9·24	"	1,395 24	128 50	10·09	"	1,523 74
Boxes, cases, powder, metal-lined	64	1·74	"	111 38	10 25	1·90	"	121 63
Boxes, ammunition, 13-pr. and 18-pr.	50	3·4566	"	172 83	15 92	3·775	"	188 75
Boxes, ammunition, S.A., Mk. XV	222	1·65	"	366 08	33 70	1·80	"	399 78
Boxes, ammunition, Q.F. 3-pr.	125	14·009	"	1,751 12	161 20	15·29	"	1,912 32
Boxes, ammunition, Q.F. 6-pr	182	14·95	"	2,722 61	250 50	16·33	"	2,973 11
Cases, cartridge, 4·7", cleaned and rectified	1,440	1·21	"	1,741 38	160 25	1·320	"	1,901 63
Clips, cartridge, Q.F. 18-pr., repaired	2,814	6·90	100	194 16	17 85	7·54	100	212 01
Clips, cartridge, Q.F. 3-pr. and 6-pr., repaired	4,061	7·20	"	292 39	26 90	7·87	"	319 29
Miscellaneous repairs for Ordnance Stores, M.D. No. 5				2,028 19	186 50			2,214 69
Numerals, cleaned and polished	90,347	0·965	100	871 82	80 20	1·054	100	952 02
MISCELLANEOUS								
Crating Machinery and Tools for Signal Service (Authority H.Q. 130-21-22, 17-5-21)				79 66	7 34			87 00
				$537,493 71	$49,983 57			$587,477 28

Reconciliation Statement

Inventory of work in process and finished goods, March 31, 1921	$ 363,611 37		
Inventory of material in stores, March 31, 1921	218,000 03		
Value of capital assets, March 31, 1921	490,099 36		
Net expenditure, 1921-22	510,276 48		
Additions and renewals by engineers, M.D. No. 5, not paid for by arsenal funds	10,116 45		
Accounts receivable, March 31, 1921	1,732 09		
Deferred charges, March 31, 1921	12,840 00		
Accounts payable, March 31, 1922	16,204 06		
Inventory of work in process and finished goods, March 31, 1922			$ 306,580 57
Inventory of material in stores, March 31, 1922			153,549 77
Value of capital assets, March 31, 1922			513,684 23
Finished goods delivered during year, as per production statement			587,477 28
Bandoliers supplied to chief inspector of ammunition			5,402 33
Cost of living bonus due employees in 1920-21 but paid in 1921-22			31,536 44
Repairs in connection with fire loss—			
Wages		$ 5,926 55	
Material		10,252 36	
Overhead		3,715 91	
			19,894 82
Refunds credited to casual revenue			3,131 83
Accounts receivable, March 31, 1922			393 64
Accounts payable, March 31, 1921			1,228 93
	$1,622,879 84		$1,622,879 84

APPENDIX E

REPORT OF THE SUPERINTENDENT DOMINION ARSENAL, LINDSAY, FOR YEAR ENDING MARCH 31, 1922

EMPLOYEES

The average number of employees throughout the year was 138.

FINANCIAL STATEMENTS

1. Appropriation and Expenditure.
2. Statement of Moneys Received and Deposited to credit of Receiver General.
3. Distribution of Disbursements.
4. Statement of Assets and Liabilities.
5. Capital Account.
6. Statement of Production and Costs.
7. Reconciliation Statement.

Appropriation and Expenditure

Total letter of credit	$225,000 00		
Balance lapsed, unexpended	2,683 92		
Gross expenditure at Lindsay		$222,316 08	
Gross expenditure at Ottawa and by High Commissioner		7,826 59	
		$230,142 67	
Less refunds credited to current year's expenditure		840 45	
Expenditure charged to Dominion Arsenal, Lindsay, vote			$204,315 89
" " Engineer Services vote			10,752 40
" " Ordnance, Arms, Lands, etc., vote			9,711 86
" " Cost of Living Bonus vote			3,476 95
" " Demobilization vote			- 990 80
" " Customs Dues vote			54 32
		$229,302 22	$229,302 22

STATEMENT OF MONEYS RECEIVED AND DEPOSITED TO CREDIT OF RECEIVER GENERAL

Dominion Arsenal, Quebec		$652 62	
Petty cash account		150 00	
Wages		21 70	
Publishers Chemical and Metallurgical Engineering		3 75	
Publishers Arms and The Man		2 48	
" Machinery		2 15	
" Brass World		1 13	
Chief Inspector of Ammunition, Lindsay Branch		4 16	
Canadian Westinghouse		2 46	$840 45
Grasselli Chemical Company			526 81
Nichols Chemical Company			140 00
Unclaimed wages, credited to casual revenue			78 85
Deposits by contractors for material not delivered at close of year:—			
Frankel Bros.	$127 72		
L. Lovitz	51 58		
D. R. Cuthbert & Company	41 00	220 30	
Amount credited to current year's expenditure			$ 840 45
Amount credited to casual revenue			965 96
		$1,806 41	$1,806 41

Distribution of Disbursements, 1921-22

Dominion Arsenal, Lindsay vote.			
Salaries and wages—			
Salaries	$ 12,707 17		
Wages	112,661 95	$125,369 12	
Fuel		19,640 78	
Cordite		19,185 80	
Power and light		9,480 41	
Aluminum, lead, copper and tin ingot		6,715 97	
Bandoliers		5,220 50	
Gratuities paid on discharge of employees		3,614 16	
Engineers' expenses on closing of arsenal—			
Wages	1,563 72		
Supplies	1,407 27		
Telegrams and telephones	15 09	2,986 08	
Water		2,344 73	
Lumber, etc.		1,859 83	
Freight, transport and travelling expenses		1,575 33	
Factory supplies, etc.		1,181 00	
Hardware, etc.		1,049 31	
Oils, paints, varnish		901 14	
Printing, stationery, advtg., etc.		826 86	
Oxygen gas, chemicals and alcohol		786 66	
Steel, iron and castings		425 29	
Containers		392 00	
Belting, belt hooks and lacing		310 09	
Pyroscopes, schroscopes and macrometers		258 99	
Railway siding rental		188 84	$204,315 89
Engineer Services and Works vote.			
Salaries and wages		3,441 79	
Addition, repairs, etc.		7,310 61	10,752 40
Ordnance, Arms, Lands, etc., vote.			
Salaries	4,152 00		
Wages	5,135 05	9,287 05	
Gratuities paid on discharge of employees		342 88	
Telephones, telegrams and postage		51 34	
Travelling expenses		23 85	
Supplies		6 74	9,711 86
Cost of Living Bonus vote		3,476 95	3,476 95
Demobilization vote.—Wages, unloading and storage of Ross rifles		990 80	990 80
Customs Dues vote		54 32	54 32
Total			$229 302 22

STATEMENT OF ASSETS AND LIABILITIES, MARCH 31, 1922

	Assets	Liabilities
Accounts receivable	$ 53 55	
Material in stores	38,293 09	
Tools and scrap on hand	43,755 85	
Lands	39,943 97	
Buildings	731,892 07	
Machinery	313,965 81	
Equipment	31,951 57	
Belting	6 72	
Shafting and pulleys	25,674 61	
Chemical apparatus	244 60	
Gas apparatus	33,945 99	
Heating apparatus	14,231 17	
Track scales	3,825 11	
Railway siding	4,725 51	
Roads	3,637 96	
Sewers	28,018 23	
Fences and sidewalks	3,193 74	
Traverses and drainage at magazines	5,162 37	
Traverses and drainage at filling plant	1,851 65	
Pipe trenches	7,713 06	
Accounts payable		$ 29,651 46
Deferred assets, deposit for scrap to be sold		220 30
Surplus, Department of Militia and Defence		1,302,214 27
	$1,332,086 03	$1,332,086 03

Capital Account, 1921-22

Net Capital March 31, 1921		By Depreciation Account Transfers, etc., 1921-22 —	Account charged Production	Transfer Quebec Arsenal	Transfer Signal Dep. Conn.R.R	Depreciation	Total Decrease
			$	$	$	$	$
Land	$ 39,943 97	Land					
Building	748,921 21	Buildings	818 90			17,029 14	17,848 04
Machinery	376,546 09	Machinery	1,490 74	4,842 86	587 51	57,149 91	64,071 02
Equipment	47,748 00	Equipment	190 26	1,388 39	31 18	14,376 86	15,986 69
Shafting and Pulleys	27,386 25	Shafting and Pulleys	14 41			1,711 64	1,726 05
Belting	6 72	Belting	218 54				218 54
Railway Siding	4,725 51	Railway Siding					
Track Scales	3,978 11	Track Scales				153 00	153 00
Chemical Apparatus	482 82	Chemical Apparatus	227 67	238 22			465 89
Gas Apparatus	36,123 25	Gas Apparatus				2,177 26	2,177 26
Heating Apparatus	14,757 22*	Heating Apparatus				526 05	526 05
Roads	4,148 43	Roads				510 47	510 47
Fences and Sidewalks	3,797 55	Fences and Sidewalks				603 81	603 81
Sewers	28,747 85	Sewers				729 62	729 62
Traverses and Drainage Magazines	5,798 42	Traverses and Drainage Magazines				636 05	636 05
Traverses and Drainage Filling Plant	2,097 85	Traverses and Drainage Filling Plant				246 80	246 80
Pipe Trench Roll. Mill to Office	1,887 00	Pipe Trench Roll. Mill to Office				102 00	102 00
	$1,347,096 25	Pipe Trench Boiler House to Inspection Filling Branch				†152 00	152 00
			2,960 52	6,469 47	618 69	96,104 61	106,153 29

To Accruements, 1921-22	$ cts.		Net Capital March 31, 1922	$ cts	
Land			Land	39,943 97	
Building	818 90		Buildings	731,892 07	
Machinery	1,490 74		Machinery	313,965 81	
Equipment	190 26		Equipment	31,951 57	
Shafting and Pulleys	14 41		Shafting and Pulleys	25,674 61	
Belting	218 54		Belting	6 72	
Railway Siding			Railway Siding	4,725 51	
Track Scales			Track Scales	3,825 11	
Chemical Apparatus	227 67		Chemical Apparatus	244 60	
Gas Apparatus			Gas Apparatus	33,945 99	
Heating Apparatus			Heating Apparatus	14,231 17	
Road			Road	3,637 96	
Fences and Sidewalks			Fences and Sidewalks	3,193 74	
Sewers			Sewers	28,018 23	
Traverses and Drainage Magazines			Traverses and Drainage Magazines	5,162 37	
Traverses and Drainage Filling Plant			Traverses and Drainnge Filling Plant	1,851 05	
Pipe Trench from Boiler House to Filling Plant	6,080 06		Pipe Trench Roll. Mill to Office	1,785 00	
			Pipe Trench Boiler House to Inspection and Filling Plant	5,928 06	
		9,040 58			1,249,983 54
		$1,356,136 83			$1,356,136 83

*Balance shown as $15,757 22 instead of $14,757 22 in Annual Report for 1920-21.
†6 months' Depreciation one-half charged to Arsenal, one-half to Inspection Dept.
NOTE.—Additions to Belting amounting to $743 86 shown under additions to Shafting and Pulleys in Annual Report for 1918-19.

Statement of Production and Costs

	Quantity	Rate Per	Amount
Boxes ammunition S.A. 1,000 rds. .303-in. on chargers	4,517	$ 3.0325 each	$ 13,697 84
Cartridges S.A. ball .303-in. Cordite MK. VII	4,795,578	55.0315 1000	263,907 92
			$277,605 76
Less value of 53 boxes ammunition shipped with semi-manufactured ammunition to Dominion Arsenal, Quebec, and included in charges against that Arsenal			160 76
			$277,445 00

Reconciliation Statement

	$ cts.		$ cts	$ cts
Inventory of work in progress and finished goods, etc., March 31, 1921	136,042 73			
Inventory of material in stores March 31, 1921	227,363 10			
Net expenditure, 1921-22	229,302 22			
Accounts payable March 31, 1922	29,651 46			
Deposit for scrap to be sold	220 30			
Deferred charges March 31, 1921, absorbed in costs 1921-22	74 73			
Unclaimed wages credited to revenue	78 85			
Capital account, March 31, 1921	1,347,096 25			
Inventory of work and scrap on hand March 31, 1922				43,755 85
Inventory of material in stores March 31, 1922				38,293 09
Finished goods delivered as per Production Statement				277,445 00
Material, machinery, components, etc., shipped to Dominion arsenal, Quebec		Machinery, equipment and material	145,799 70	
		Manufactured or semi-maaufactured material	49,089 66	
				194,889 36
Expenses re shipments to Dominion arsenal, Quebec		Freight charges	5,212 74	
		Wages	2,334 00	
		Supplies	123 48	
				7,670 22
Expenses—Shipments of ammunition to C.I.A., Quebec				346 50
Expenses closing of arsenal		Salaries and wages	6,848 67	
		Heating and electricity and water	4,546 70	
		Supplies	2,220 56	
		Telephones, telegraphs and postage	124 52	
		Transport	12 48	
				13,752 93
Gratuities paid employees on discharge				3,614 16
Expenses returning employees to Quebec				345 48
Expenses—Chief Inspector of Ammunition, Lindsay Branch		Salaries, wages, etc., as per Ordnance, Arms, Lands Vote	9,711 86	
Supplied by Dominion arsenal, Lindsay, or other sources		Transportatioa supplies,etc.	113 42	
		Heating	1,703 08	
		Electricity	300 00	
		Bandoliers	5,220 50	
		Repairs, buildings, depreciation, etc	95 20	
				17,144 00
Expenses storing rifles				990 80
Casual revenue				965 96
Machinery and equipment shipped to Signal Depot, Ottawa		Value of machinery and equipment	390 42	
		Shipping charges	5 13	
				395 55
Electric motor shipped to Connaught rifle range		Motor	228 27	
		Shipping charges	12 02	
				240 29
Accounts payable March 31, 1921				23,990 69
Accounts receivable March 31, 1922				53 55
Depreciation account, 1921-22				95,952 61
Capital account March 31, 1922				1,249,983 54
	1,969,829 64			1,969,829 64

APPENDIX F

ANNUAL REPORT OF THE COMMANDANT, ROYAL MILITARY COLLEGE OF CANADA, FOR THE YEAR 1922

FOREWORD

May I repeat the foreword of my report of last year, namely, that every possible assistance has been received from the Honourable the Minister of Militia and Defence and the Militia Council during the period under review, and I again wish to express the grateful thanks of all connected with the Royal Military College of Canada for the consideration which has been given to all matters wherein the welfare of the institution has been affected.

DISCIPLINE

The Infantry Battalion system, introduced last year and mentioned in my 1921 report (with officers of the superior staff placed over the cadet officers to supervise and act as guides, philosophers and friends) has proved an unqualified success.

A large mead of praise for this is due to Lt.-Colonel K. M. Perry, D.S.O. The R.C.R. in command of the Battalion, and he has been well supported by Lt.-Colonel J. A. Scroggie, D.S.O., M.C., P.P.C.L.I., and Major J. Jeffery, O.B.E., M.C., the R.C.R., "A" Company and "B" Company commanders respectively.

The First Class had the benefit of working under this system for six months and consequently on their appointment to N.C.O. rank last August they were thoroughly conversant with it. The manner in which they have enforced discipline and carried out the administration of their units is praiseworthy indeed. With very few exceptions, the discipline has been excellent.

The Cadet Battalion commander, Battalion Sergt.-Major C. D. T. Mundell, is a strong character, knows what he wants and enforces it. He has the tact and firmness to obtain ready obedience from his juniors and is quite outstanding as a battalion sergt.-major; in fact, the manner in which he has discharged the somewhat onerous duties of his office is praiseworthy in the extreme. He has been well supported by his class, Company Sergt.-Major R. E. MacPherson, Cadet Commander "A" Company, and Company Sergt.-Major W. W. Southam, Cadet Commander "B" Company, being especially worthy of mention, whilst the four platoon commanders, two quartermaster sergeants and the section commanders have been well above the average.

SPORTS

The principles outlined in my report of last year have been enlarged upon and have proved most successful. During the earlier part of the autumn as many as seventy cadets a day played rugby and association football, and during the latter part, inter-platoon and company games were arranged.

The first football team in the inter-collegiate intermediate series won five games out of six, and only lost the championship by a close margin in the last game. The second football team were defeated in the first round by Queen's Juniors, who finally won the Junior Inter-Collegiate Championship.

The hockey season 1921-22 was a very successful one. Though the cadets teams did not win a trophy, yet they more than sustained the good name of the College

in sports by the cleanness of their play and by the keenness and good sportsmanship with which they entered into every contest. A splendid sheet of ice was provided all winter in the Holt rink, the best sheet of ice in Kingston.

During the hockey season, each platoon was given the opportunity for practising amongst themselves and later inter-platoon games were played. Our hockey teams were not able to get beyond the first round in the inter-collegiate hockey series.

Our harrier team competed in the inter-collegiate harrier meet and won second place and our track team was represented at the inter-collegiate track meet.

As usual, the annual boxing tournament, which was held in April, produced some good bouts.

The activities of the R.M.C. Rifle Club, showing a decided improvement over recent years, are referred to elsewhere.

The mounted sports were held during the visit of the board of visitors and proved very successful, and will be held again this year during the visit of the advisory board.

ATTENDANCE

At the entrance examinations last year 81 candidates presented themselves for admission. Of these 59 were accepted and 6 matriculants were allowed to enter the college. One of the successful candidates did not join owing to medical unfitness and therefore 64 recruits reported in August last and were taken on the strength.

During the year, ten cadets of the third class and of the recruit class were discharged at their parents' request.

It is impossible at the moment to state what has been the effect of the policy which governs the admission of candidates to the college, and which automatically cancels the holding of special R.M.C. entrance examinations. It will be noted that last year's board of visitors emphasized the prerogative of the college to set the standard of its own examination, to correspond as nearly as possible with the matriculation of the universities, but did not feel that the time had arrived when attendance at the college should be by proportional representation by provinces of Canada, as recommended by the board of visitors for 1920.

The board of visitors, 1921, approved of the suggestion of the Commandant that the universities of Canada should be approached with a view to ascertaining whether the graduates of the Royal Military College, who have obtained 75 per cent or over could not be admitted into the fourth year of the Canadian universities instead of the third. It is hoped that the matter may be taken up with the various universities concerned as soon as our syllabus is prepared, so that the university authorities will have a definite syllabus laid down on which to base their decision.

SELECTION BOARD FOR ENTRANCE

In connection with the selection of candidates for entrance to the college, a certain amount of correspondence has been carried on with Militia Headquarters as to the standing which should be given a candidate who has passed his honour matriculation, Militia Headquarters recommending that a candidate be judged only on his junior matriculation marks and that only in case of a tie should a candidate who has passed his Honour Matriculation receive precedence over the Junior Matriculant.

I think, however, that a candidate who has passed Honour Matriculation before entry to the College is certainly in a better position than a candidate who has only passed his Junior Matriculation.

I therefore bring the matter before the Advisory Board, as suggested by Militia Headquarters, and request that if they concur, they will recommend an amendment on the following lines:—

> "If a Candidate has passed complete Pass Junior Matriculation whilst still too young to enter the R.M.C., and has subsequently attained a Pass

standing in Matriculation with Honours in at least three subjects, one of which is Mathematics, he shall, on attaining the proper age, be qualified to compete for entrance to the R.M.C. and the Board of Selection may give him such precedence for admission as they deem due to his standing in his Pass and Honour Matriculation."

COLLEGE CURRICULUM

It has been suggested that it would be wise to introduce into the Course for the Recruits the subjects of shorthand and typewriting, and it is felt that if we can in their first year at the College give them a knowledge of these subjects, it would aid them in taking notes during the subsequent years of their work here and make them more proficient in the subjects of the Course, and at the same time provide them with a permanent knowledge of shorthand and typewriting which will always be useful to them.

To this end, 25 typewriting machines have been applied for and if recommended by the Advisory Board an effort will be made to commence this Course next August.

SUPERIOR STAFF

I was sorry to lose the energetic services of Lt.-Colonel W. G. Beeman, D.S.C., R.C.A., who was Professor of Artillery and who left us to attend the Staff College. During his short time at the College he maintained a high standard of efficiency in Artillery.

Major R. W. Brigstocke, who acted as Instructor in Chemistry has also left and I wish to place on record his good work while at the College.

Mr. A. T. Clarry, Instructor in Chemistry left us last June, and Professor D. W. Munn, Professor of Civil Engineering who had held that position for two years resigned to accept an appointment at the Nova Scotia Technical College.

We were all glad to welcome Lt.-Colonel C. F. Constantine, D.S.O., R.C.H.A., who, having completed his year at the Staff College with great credit, is again Professor of Artillery (temporary).

I would like to place on record the good and efficient work of Captain W. J. Finney, C.B.E., R.C.A., who, as reported last year was taken on the strength as Instructor in Artillery. The hard and efficient work of Captain E. J. Harvey, C.M.S.C., should also be brought to notice. This Officer is doing the work of Superintendent of Gymnasia and Paymaster, R.M.C. As before, he has carried out the duties of the latter appointment in an able manner and has also proved most successful in the instructional capacity of Superintendent of Gymnasia.

We welcome the following gentlemen as members of the Staff:—

Major L. F. Grant, Instructor in Civil Engineering.

Captain A. W. Kelly, C.M.S.C., Quartermaster.

Lieutenant and Bt. Capt. G. N. Dickenson, R.C.E., Instructor in Mil. Engineering.

Professor L. A. Browne, Associate Professor of Mathematics.

Dr. J. L. McKee, Instructor in Chemistry.

Mr. P. Lowe, Instructor in Mathematics.

Mr. A. C. Lewis, Instructor in Physics.

The Staff Adjutant's Branch, under the able and efficient administration of Major E. de L. Greenwood, R.E., a zealous tactful officer of marked administrative ability, is in a splendid condition and records are up-to-date.

On May 31, Professor I. E. Martin, B.A., retires to pension at his own request under the provisions of the Calder Act. For over thirty years he has been a Professor at the Royal Military College, first in the Department of Mathematics and for the last three years as Director of Studies. He has worked hard and efficiently during the whole

period of his service and earned his pension well. He carries with him in his retirement the hearty good wishes of all ranks, R.M.C., to himself and Mrs. Martin.

On May 10, Queen's University conferred on me the Degree of LL.D., for services in command of the 1st Canadian Division and as Commandant, R.M.C. of Canada. This signal honour to the Commandant strengthens the existing cordial relations between the University and the College and is much appreciated by all ranks of the Royal Military College.

MEDICAL ARRANGEMENTS

During the year the health of the Cadets has been good. No deaths have occurred.

One hundred and sixty-eight Gentlemen Cadets were admitted to hospital during the year. Four hundred and twenty attended hospital for treatment. There was one case of appendicitis requiring operation. Full recovery has been made.

There were five cases of fracture during the year, all of whom have fully recovered. There were three cases of mumps, all having fully recovered.

The drinking water is still properly treated and remains in excellent condition. No cases of disease are attributable thereto this year.

Full advantage of the X-Ray equipment of Sydenham Hospital has been taken and all Gentlemen Cadets severely injured have been examined there to confirm the diagnosis.

The buildings are in a sanitary condition and in good state of repair and are excellently kept. The kitchen utensils are clean and well polished.

STATISTICS OF PHYSICAL DEVELOPMENT OF CADETS

1st Class

Date of Inspection	No. in class	Average age	Average individual increases since last measurement				
			Height	Weight	Chest	Forearm	Upper arm
April, 1921	39	17·10	5′8¾	142½	32½ 37	11	13
April, 1922	37	18·6	5′9	145	33½ 38	12½	13¼
Gained			¼″	2½	1″	1½″	¾″

2nd Class

April, 1921	15	20	5′11½	140	36 39	11	12½
April, 1922	15	21	5′11½	143	37 40½	12	13¼
Gained				3	1 1½	1″	¾″

3rd Class

April, 1921	53	18·6	5′11″	134	32½ 36	10½	12
April, 1922	37	18·10	5′11¼″	136	33 37	11	12¾
Gained			¼″	2	½ 1	½″	¾″

4th Class

August, 1921	71	17	5·10	129	32 35	9	10
April, 1922	64	17·6	5·10	132	32½ 36	9	10¼
Gained				3	½ 1		¼

Subordinate Staff

Military

As reported in my last year's Report, the work of the Subordinate Military Staff has been in every way satisfactory. They have given their best efforts towards improving the efficiency of Cadets and the College in every way.

I regret to report that Company Sergt.-Major S. J. Batt, P.T.S., who was N.C.O. Instructor in Physical Training, has left us.

Quartermaster-Sergeant (W.O.) L. W. Gask, C.M.S.C., has also left us after seven years of faithful and efficient service.

I would like to bring to your notice the faithful work of Staff Sergeant-Major (W.O.) W. Boss, C.M.S.C., in the Central Registry. In addition to his duties there, he is also in charge of the Records of the Ex-Cadets and shows an intense keenness in his work in this Department as well as his other duties.

I would also like to commend the good work of Quartermaster Sergeant (W.O.) C. W. Taylor, R.C.E., N.C.O., Instructor of Survey, and in charge of the Draughting Department.

During the year, the following W.O.'s and N.C.O.'s were taken on the strength of the Military Subordinate Staff;—

C.S.M. (W.O.) J. Crawford, M.M., P.P.C.L.I., N.C.O., Instructor in Inf. Drill.
C.S.M. (W.O.) G. Preston, P.T.S., N.C.O. Instructor in P.T.
C.S.M. (W.O.) J. E. Huggett, P.T.S., N.C.O., Instructor in P.T.
C.Q.M.S. G. Logan, R.C.A.S.C., Quartermaster Department.
Sergeant W. E. Bolton, C.M.S.C., General Staff Branch.
Sergeant W. Chick, R.E., N.C.O. Instructor in M.E.

Civil

I am well satisfied with the work of the Civil Subordinate Staff and appreciate that all their efforts have been directed towards the discharge of their respective duties in a meritorious manner.

I would like to bring to the notice of the Board once again the fact that it is desirable that the Servant Staff should be dressed in a distinctive College uniform.

The services performed by Mrs. Miller, the hard-working house-keeper, must not be overlooked.

R.M.C. Calendar

The complete manuscript for the College Calendar has been forwarded to Ottawa and the decision of the Honourable the Minister of Militia Council is awaited regarding the printing of this publication. I consider it most important that a Calendar should be provided as soon as possible, not only for the purpose of providing the parents of intending Candidates with all necessary information regarding the College, but also in order that the Syllabus may be clearly laid down and the attention of the various Universities invited to the attainments of our graduates.

I beg to request that this matter may receive the consideration of the Board.

"The Royal Military College Review—Log of the Old Stone Frigate," is still being published and becomes more interesting and attractive with every issue.

Uniforms

The College Master Tailor's Shop has been increased by the addition of three seamstresses.

The institution of this shop has proved a great boon. Cadets are now able to have their clothing inspected and passed regularly and it is felt that even better results will be attained in the future.

The Tailor Shop having but recently been inaugurated, and the scarlet tunics only reintroduced last year, the work of the shop has been handicapped by the necessity of making extra tunics this year for the 2nd and 3rd classes, whereas, in the future, this attention will be required by the Recruit Class only. It is certain that next year, when the normal output of garments only will be required, the benefit of the Master Tailor and his staff on the premises will be even more apparent, quite apart from the considerable saving which has been effected.

TRAINING AND EDUCATION

I wish to bring to the attention of the Board the work of Professor F. H. Day, B.A., M.Sc., Professor of Physics and Chemistry at the College for the last eight years. A report on the work of his department is quoted below. Under his enthusiastic guidance and energy a high state of efficiency has been reached.

Several important and satisfactory improvements have been witnessed during the past year. The new Chemistry Laboratory, which was occupied last fall has more than realized our expectations in this branch of science. A laboratory for Physics has been improvised in the old building and this must necessarily be crowded and somewhat confused until the new Educational Building is entirely completed.

Much of the success of the year is due to the untiring and enthusiastic support of the two new members of the teaching staff of this department, Mr. J. L. McKee, Ph.D., Instructor in Chemistry, and Mr. A. C. Lewis, M.A., Instructor in Physics, both of whom combine high scientific attainments with excellent teaching ability. These additions to the staff have made it possible to develop the instruction in Science along those lines so essential to-day to the education of a military officer.

Colonel H. J. Dawson, C.M.G., D.S.O., a real educationalist, has been promoted Professor of Mathematics, which promotion he richly earned by so many years of faithful and efficient service, at the college, coupled with a brilliant overseas record.

In the Department of Mathematics, the courses of study laid down for the different classes were covered as thoroughly as time would permit. The results of the examinations showed, however, that more time should be available for individual study, so that the lessons taught in the classroom may be better learned and better fixed in memory. This failure of power of retention was very noticeable, though considerable time for review was given.

During the year, the classes were, for the first time, divided into sections, each under an instructor. In the Second Class and in the Third Class, the sections consisted of not more than fifteen cadets and in those classes there was a marked improvement in diligent application to study and in interest. In the Fourth Class, the sections were too large to derive the full benefit of division into sections, as the results obtained were not as satisfactory as with the other classes.

The Fourth Class proved a very mixed class, since the standard of education at entrance differed greatly with different individuals. Some had taken Honour Matriculation, whilst others were barely up to the Pass standard of our own Entrance Examination, which was less than Junior Matriculation. The necessarily moderate rate of advance over the subjects laid down for study failed to call forth the full powers of the better students and yet proved too fast for those less well prepared. Thus the desideratum of every student working with the full exertion of his powers was not attained. It is hoped that the new standard for entrance will supply a more evenly graded Recruit Class.

Lt.-Colonel E. J. C. Schmidlin, M.C., R.C.E., a distinguished graduate of the college has been made Professor of Engineering, and with the assistance of his staff has handled both Civil Engineering and Military Engineering during the past year with efficiency, and on the whole, satisfactory results. He has done good work and has been well supported.

He reports that the members of this year's graduating class have applied themselves consistently to the work during the lecture periods and have made an honest

effort to assist the members of the staff in covering the considerably increased programme of studies which was planned for this year.

The aims of this department were to arrange the programme so that the work covered corresponded with that of the second year of Applied Science for Canadian Universities, together with one or two subjects which every practicing engineer must know something about and which are not taken at the universities until the third year. This is of great benefit to graduates going into engineering work directly on leaving the college.

Through hard work, the laboratory equipment for testing materials is well on the way towards completion and the laboratories will be available for use next year.

Space for draughting is very urgently required, although the drawing this year is further advanced than previous years owing to the provision of special draughting tables.

Colonel Schmidlin pays a high tribute to the enthusiastic work of his staff in this department. He says: "Without the enthusiasm and co-operation which were in such marked evidence this year, we could not possibly have covered nearly all the ground we did."

RIDING AND RIDING ESTABLISHMENT

The instruction in riding at the R.M.C. has not varied greatly from my previous reports. The Senior Class was formed into a Squadron and was instructed in Cavalry Drill, both in Troop, Squadron and Regimental formations, and were well drilled in ceremonial work. The sword and lance was taken up mounted, both in tent-pegging and dummy thrusting.

Captain Bray, our keen and indefatigable riding master has again done excellent work. Indeed, in the last twelve months he has excelled himself, bringing the riding establishment to a high grade of efficiency as well as giving the Cadets an excellent and progressive course.

The 2nd, 3rd and 4th Classes received instruction in riding proportionate to their progress in this subject. They have all been instructed in the use of the sword and lance dismounted, the 2nd Class being very good with both weapons in mounted and dismounted work.

A drill shed for dismounted arm drill would much improve the efficiency of the Gentlemen Cadets.

The regular instruction in riding, vaulting and jumping has been carried out and I consider all the Gentlemen Cadets, with very few exceptions, efficient in the work so far as they have progressed.

The Recruit Class commenced riding a month before previous recruit classes, but owing to the size of the class it was necessary to divide them into three rides of about 22 files each, the horses available only permitting the mounting of about 50. 20 of this number had the advantage of the Riding School and the remainder received instruction in the open.

Advantage was taken of the rooms in the Riding Establishment for lecture purposes and the whole of the recruit class were instructed in shoeing, so many being detailed for work in the forge to see the removing and fitting of shoes, etc.

In my previous report it was mentioned that the accommodation available at the Riding Establishment was not sufficient to handle large classes, and until this is remedied, I consider that the present system cannot be improved upon.

There are two very capable rough riders assisting in the instruction imparted to the Gentlemen Cadets and it is to be regretted that the Pay and Allowance Regulations as at present constituted do not provide additional compensation for this class of instructor.

The N.C.O's and men of the Riding Establishment have put on exhibition rides at the Cobourg Horse Show and other community events and have very ably represented the College at these places.

The interior economy of the Riding Establishment has improved considerably since my last report, greatly due to the efficiency of the present N.C.O. in charge, Sergt.-Major A. Bilton, R.C.H.A.

ARTILLERY

There has been a marked improvement in artillery training, due to the introduction of "Artillery Week" during the last two years, and the Graduating Class were able this year to fill every position up to and including Battery Commander. The only thing apparently lacking is that they have had no experience of working with service ammunition. Special instruction has been given this class in Store Accounting, Sound Ranging and co-operation between aircraft and artillery.

Owing to the issue of new training manuals in artillery, much of last year's work had to be revised.

The small size of the Second Class has enabled much individual instruction to be given and rapid progress has been made, each Cadet being able to handle the position of Battery Section Commander.

It is considered that the members of the 3rd Class could satisfactorily fill any position in a battery below the rank of Section Commander. During Artillery Week, they acted as Gunners and Drivers and had the practical experience which is so valuable in implanting firmly in their minds the lessons learned.

The Recruit Class received a thorough grounding in the organization of Artillery, gun, and mounted drill, fuse setting, fitting harness, construction of gun and carriage, etc., and have been provided with a foundation which will enable them in the future years of their course at the College to master the details of artillery science. They would pass now in a Battery as 1st Class Gunners.

TACTICS

The subjects of Military Geography and Imperial History have been added to the curriculum of the 1st Class in order that the Gentlemen Cadets may have some knowledge of Imperial affairs. It has been found that these subjects appeal to them, and the results of the examinations from time to time in both branches indicate the awakened interest of the Gentlemen Cadets.

Tactical training was carried out by means of schemes on the map and on the ground, and proved satisfactory in every way.

"The Trek" was again a success, the venture of the previous year being enlarged upon and the Cadets put under canvas with a view to providing them with practical experience in camp routine. Arrangements have been completed for a trek to be held this year along similar lines.

PHYSICAL TRAINING

The physical training of the Gentlemen Cadets has been carried out under the "Ling" System (Swedish) as used in the British Army, and the same high standard of efficiency has been maintained.

The benefits which accrue to the Gentlemen Cadets from the instruction derived from physical training are quite apparent in the improved appearance and physique of the Cadets after a few months' training.

The exercises are arranged systematically in progressive tables, intended to promote a harmonious development of the whole body,—the primary object being the maintenance of the highest possible state of mental and physical fitness.

Lessons are arranged according to the capacity of the individual classes, and increased gradually in difficulty from week to week, and month to month, to ensure steady and systematic progression throughout the entire course of training.

Brain stimulating games are interspersed throughout the various lessons as recreational training.

As a class arrives at a satisfactory stage in physical training and individuals become active and strong, instruction in recreational gymnastics is given and Cadets are encouraged to become proficient in boxing, wrestling, bayonet fighting and fencing; exercises are also carried out on gymnastic apparatus such as horizontal bars, vaulting horse, parallel bars, bridge, ladder, Indian clubs, etc.

Under the able instruction of the specially selected non-commissioned officers of the Army Gymnastic Staff, the Gentlemen Cadets obtain the full benefits which accrue from this systematic training, which may be summed up as the maintenance of "a sound mind in a sound body."

MUSKETRY

Musketry Courses have been carried on as laid down, under the efficient instruction of Major J. Jeffery, O.B.E., M.C., The R.C.R., assisted by Sergt.-Major (W.O.) F. Faulkner, L.S.H. (R.C), and College Sergeant-Major and Company Sergeant-Major (W.O.) J. Crawford, P.P.C.L.I.

Again this year, the work of Major Jeffery and Sergt-Major Faulkner in connection with the instruction of musketry to the Gentlemen Cadets has been beyond praise. They have not spared themselves in endeavouring to bring musketry up to the highest standard.

The usual College spoon shoots have been held.

Owing to the initiative of the R.M.C., a League, known as the Canadian Inter-Collegiate Rifle Association, has been instituted, consisting during the past year of McGill University, Toronto University, Queen's University and R.M.C. It is hoped that other Colleges and Universities will join the Association and that in time there will be a large membership, the objects of the League being to encourage shooting with the Service Rifle.

For this year, the R.M.C. team came first in the .22 Miniature Rifle Competition and McGill C.O.T.C. in the .303 Gallery Practice Competition.

I regret to report that in the R.M.C.—Sandhurst vs. R.M.C.—Canada Rifle and Revolver Competition, the English College won both series.

I once more place on record the gratitude of all ranks at the College to the Governments of the Provinces of Quebec and Ontario, who have again each made a grant to the R.M.C. Rifle Club of $100. This generous assistance has done much to foster the interest in musketry at the College and to encourage the Gentlemen Cadets in their efforts to become proficient marksman.

SERVANTS

I beg to draw your attention to the recommendation contained in the Board of Visitors' Report last year that the servants should be placed on a military basis.

It is hoped that some arrangements of this nature may be recommended by the Advisory Board.

BUILDINGS

The Board last year strongly recommended that action be taken towards the completion of the Fort Frederick Dormitory, and it is hoped that a Supplementary Estimate may be presented for the consideration of the Government with a view to the completion of at least one wing to the Fort Frederick Dormitory.

This is most essential, since we will be unable to take in the average number of Recruits in 1923 unless further accommodation is provided. It is pointed out that admission to the College is governed entirely by the number of vacancies caused by Cadets leaving, and only 15 Gentlemen Cadets will graduate in 1923.

We have for a year enjoyed the increased advantages of the New Educational Building. The large lecture amphitheatres and section classrooms have enabled the

division of large classes into their four sections to be carried out. The Professors can thus carry the Senior Section further than the others and devote more time to the last or "Dnd" Section.

Changes are made by promoting or demoting from one Section to the other, according to the ability of the Cadets. The increased facilities in Chemistry furnished by our new Laboratories has made itself felt in increased efficiency in both Physics and Chemistry, as the former has now the Quarters previously allotted to both, and the latter has a most complete and up-to-date balance room, store room, experimental room, and laboratory.

The Machinery Hall has been well fitted up under Colonel Schmidlin's expert eye, and the Modern Science Hall is gradually forging ahead.

In last year's report, mention was made of a Superior Staff Mess and a Subordinate Staff Mess. These are now fitted up and occupied and have proved boons indeed. In fact, it is difficult now to realize how we ever got on without them. Comfortable, and supplying a long felt want, they certainly go a long way to fostering camaraderie and esprit-de-corps.

TRAINING GROUND

The parade ground has been enlarged, a long felt want, so as to extend as far as the Fort Frederick dormitory.

The work was expeditiously done by Mr. T. Scott, of Kingston, and gives us not only a more satisfactory battalion parade but improves the symmetrical appearance of the grounds.

May I call attention to my remarks in last year's report under this heading, wherein the hope was expressed that some day a causeway may be constructed across Navy Bay in order to provide speedy access to the training ground in the vicinity of Fort Henry.

BOARD OF GOVERNORS

In accordance with the decision of the Government, the board of visitors, which formerly met once a year, visited the college and submitted their recommendations, has now become an advisory board, this year being the first year the board has met.

HISTORICAL RECORDS

"The Sir Arthur Currie Hall" is now a "fait accompli", the Government giving a grant of $3,000, Major D. Stuart Forbes, M.C., R.C.M.G. Bde., put his kind offer of last year into effect and in addition cut the stencils designed by Professor Nobbs of McGill University, who planned the beautiful colour scheme and did much work himself, and last, but by no means least, Mrs. Forbes herself, in addition to helping in other ways, worked a beautiful lambrequin planned by Professor Nobbs; so between the three, hundreds of dollars were saved and the money we had, a large portion of which necessarily had to be expended upon portraits of the generals, was laid out to the best advantage and made to go as far as possible.

Beautiful shields of provincial arms have been carved and painted by Lieutenant E. T. Adney, R.O. These are a great addition to the hall from a historical as well as ornamental point of view.

The grateful thanks of all ranks of the R.M.C. are due to the above mentioned, with the largest portion to the indefatigable Major, who had made a great success of the badges and the stencilling and without whose kindness in doing it as his free-will offering, nothing could have been attempted.

ATTACHED OFFICERS

I wish to place on record the excellent work of Colonel T. V. Anderson, D.S.O., p.s.c. (with the assistance of various members of the college staff) in preparing the first preparatory course since the war.

The preparatory course commenced on October 1, 1921, and came to an end the day preceding that set for the commencement of the staff college entrance examination, February 27, 1922. This period of 150 days contained 103 working days.

The instruction was given by means of lectures, indoor and outdoor exercises and conferences. Many of the exercises were done by syndicates, that is, the students were formed into one or more syndicates, each of which gave in one solution to the exercise.

In October, each student was allotted a Dominion or a foreign power upon which to prepare a lecture, and these were delivered in December or January. The subject matter was based on the syllabus laid down for the staff college entrance examinations in "Organization and Administration" and "Imperial Organization." The research work required and the practice in compiling their notes and delivering their lectures were of undoubted value.

Few, if any, of the students had appreciated the amount of work necessary to prepare for the staff college entrance examinations, and it should be impressed upon future candidates that many months of systematic study prior to taking the preparatory course is necessary if the entrance examination is to be successfully undertaken.

A refresher course for officers of the Permanent Force was run in conjunction with the preparatory course for the first three months. The officers of the former took the same lectures and did the same work as those of the latter, and the whole course was so arranged that the subjects of most use to the refresher course were taken up during the first three months of attendance. It is considered that these two courses can be run conjointly without seriously retarding the work of the preparatory course.

Lectures from officers at Militia Headquarters were of the greatest value and should be a feature of future courses. Not only do the students get lectures on subjects from those best qualified to discuss them, but the change from the lecturers to whom they have become so used to listening freshens their interest in the course. The students also had the privilege of hearing lectures from Colonel J. L. Regan, C.M.G., late Director of Pay Services at Militia Headquarters, and Lt.-Colonel D. Forster, C.M.G., D.S.O., of the British War Office.

It is felt that any officer attending the course and endeavouring to profit by it cannot help leaving a more useful officer than he came, and it is thought that it might be well to record the taking of the course in some way.

CUPS AND TROPHIES

It is regretted that during the first year of competition for the Lafferty Cup, the Royal Military College were unable to make a good showing.

The institutions competing for this cup obtained points as follows:—

		Points.
1st.	R.M.C., Sandhurst	9½
2nd.	R.M.A., Woolwich	8
3rd.	R.M.C., Australia	7
4th.	R.M.C., Canada	2½

IMPROVEMENTS TO COLLEGE

The improvements mentioned in my last year's report headed "Improvements under way" have now been completed.

The enlargement and macadamising of the parade ground, which has doubled its size and now gives an area of approximately 185 yards long by 75 yards wide, was completed and is a great improvement.

The grading of ground behind the New Educational Building has been executed, including the making of tarvia roads and concrete curbs, laying out of lawns, flower beds, and planting of shrubs and trees.

At the request of the Graduating Class of 1910, I planted twelve white birch trees, which they presented to us, at the College, commemorating those of the Class who have fallen in the late war. A granite slab, giving the names of the Ex-Cadets in whose memory the trees have been planted, is shortly to be placed in the grove.

Hydro Electric power was installed for all services, thus cutting out the expensive manufacture of direct current, which cost about $10,000 per year to manufacture, and, the cost of hydro power being but $1,800 a year, a saving of $8,200 annually has been effected.

A new stable was erected at the north side of the Riding School to accommodate 23 horses. This building was erected with lumber from the Hutments at Barriefield, (using the labour available on the College Staff) at very little expense and has proved to be a much needed want as heretofore the stable accommodation was very congested.

No pains have been spared in the efforts to still further beautify the College Grounds. Roads have been built, ground levelled, lawns constructed and flower beds planted.

The staircase in the Administration Building has been converted into a "Memorial Staircase", the photographs of each of the one hundred and seventy Ex-Cadets who have died on service having been placed on the walls. Other steps are being taken to beautify the staircase and to impress upon the Gentlemen Cadets the heroic sacrifice of those whose names are inscribed on the College Roll of Honour.

It has been possible to provide an overflow Messroom on the second floor for the Gentlemen Cadets, with an elevator for the transmission of food from the kitchen, which now carries meals to both first and second floors.

It has been proposed by Colonel Anderson that a beautiful Memorial Avenue could be made by planting trees on both sides of the main highway leading from the LaSalle Causeway to Barriefield Village, on the heights above; one tree for each Cadet. The distance lends itself to this, and it is proposed to bring the matter before the Ex-Cadet Club for their approval and action after the erection of the Memorial Archway.

The G.O.C., M.D. No. 3, has recommended the immediate fencing in of Barriefield Common below the village, and the Government Grounds on the Plateau above, to guard against the ever present danger of glanders and other infectious diseases due to the promiscuous pasturing of horses and cattle and the bands of strolling gypsies who camp on these grounds without leave during the mild weather. On the principle that prevention is better than cure, I beg leave to strongly endorse this recommendation.

In conclusion, I would like to record the praiseworthy work of Captain F. Vokes, R.C.E., who, as District Officer, R.M.C., has been untiring in his efforts to keep the buildings in a satisfactory condition and to improve the appearance of the grounds.

GIFTS

I beg to place on record the very grateful thanks of all ranks of the Royal Military College of Canada to the undermentioned gentlemen, who have presented the Institution with articles of an ornamental and utilitarian nature.

Mr. E. W. Beattie, K.C.
Colonel F. L. Wanklyn.
Mr. R. B. Angus.

Mr. A. D. MacTier.
Captain P. W. Cook.
Brig.-General J. Ross, C.M.G.
Colonel McLennan.

BUSINESS LECTURES

During the year, the Gentlemen Cadets had the great benefit of attending lectures, which were given by prominent citizens of Kingston on current topics of interest, and I welcome the opportunity to express the gratitude of the Staff and Cadets to those who so kindly consented to deliver addresses at the College.

These addresses were devised with the object of providing the Cadets with a knowledge of the problems of business life, and the principles which guide men of affairs in the conduct of their various enterprises. They were directed with a view to inspiring them with a desire for thought on topics, of general broad lines, and with the idea of increasing their breadth of vision.

The following is a list of the gentlemen who so kindly spoke, and their subjects:—

Mr. H. C. Nickle, "Civic Administration."
Mr. Elmer Davis, "Ideals in Business."
Rev. Principal R. Bruce Taylor, M.A., D.D., "The Advantages of Reading."
Professor G. W. Mitchell, "The Battle of Pharsalia."
Colonel D. E. Mundell, M.D., "The Development of Medical Science."
Mr. R. E. Burns, C.A., "The Principles of Taxation."
Dr. L. J. Austin, M.D., "Patent Medicines."
Mr. J. M. Campbell, "The Deep Waterway System."
Mr. T. J. Rigney, K.C., "The Legal Profession."
Captain J. A. Roy, M.A., "The Intelligence Service."

VISITORS

In June, 1921, Senator the Honourable G. D. Robertson honoured the College by presenting the Diplomas and Prizes on Diploma Day, when many distinguished visitors were present.

During the year, the following amongst others, visited the College:—

His Excellency the Governor-General of Canada.
Her Excellency Lady Byng.
Sir Edmund Walker, D.C.L., C.V.O., LL.D.
Lt.-General Sir R. E. W. Turner, V.C., K.C.B., K.C.M.G., D.S.O.
Lt.-General Sir Henry E. Burstall, K.C.B., K.C.M.G., A.D.C.
Major-General J. H. MacBrien, C.B., C.M.G., D.S.O.
Major-General Sir E. W. B. Morrison, K.C.M.G., C.B., D.S.O.
Brig.-General H. T. Hughes, C.M.G., D.S.O.
The Right Rev. Archbishop Worrell, of Halifax.
Professor A. E. Zimmern, University of London.
Professor Bougle, University of Paris (La Sorbonne).
Commissioner A. B. Perry, C.M.G., A.D.C.
Lt.-Colonel Rev. F. G. Scott, C.M.G., D.S.O.
His Lordship the Bishop of Alexandria.
The Consul-General for France.
M. Joseph Archambault, M.P.
Mr. T. L. Church, M.P.
His Lordship, Bishop Fallon, of London.
The Rev. C. W. Gordon, D.D. (Ralph Connor).
Colonel D. Forster, C.M.G., D.S.O.

A. C. MACDONELL, Major-General,
Commandant, The Royal Military College of Canada.

ROYAL MILITARY COLLEGE.—APPENDIX TO COMMANDANT'S REPORT

REPORT OF THE DIRECTOR OF STUDIES

In an educational institution such as a Royal Military College should be, it is my opinion that the policy of the Government respecting the aims and objects of the College should be the first item decided upon and explicitly indicated; after which the buildings for educational purposes and the scientific equipment essential to achieve the aims and objects above decided upon should be provided; and then the educational staff should be selected with a view to conducting efficiently the instruction given therein.

The Royal Military College has, during my experience of thirty-two years, been lacking in the educational aims and objects above referred to and as the Commandant was left alone to interpret the aims and objects, and organize the instruction of the Gentlemen Cadets, it necessarily followed that much discontinuity has prevailed in view of the frequent and many changes of Commandants, whose term of service has been restricted to a limited time. It was on account of these many variations that I conceived the idea of suggesting to the Government the propriety of appointing a Director of Studies, whose term would not be determined by a limited period but whose experience on the teaching staff of the College would guarantee his promotion to that responsible position, wherein he could perpetuate the policy which the Government inaugurated.

This highly technical position has many difficulties presenting themselves, in view of the fact that the authority of the Director of Studies is subject to the approval of the Commandant for the time being, whose educational experience (as a military officer) must necessarily be inadequate.

The instructional work which a military officer does in his regimental duties is not of an educational character, but rather directions to subordinates of a training nature for the practical performance of military operations and is thus of the nature of telling rather than of teaching, and is of a mechanical nature rather than an intellectual exercise. Listening is not learning.

The young gentlemen who are in attendance at the Royal Military College come to us at an age when their education is of paramount importance, and the training of that mechanical character is a matter of little value at that impressionable age. We have training schools of Artillery, training schools of Military Engineering, training schools of Cavalry and training schools of Infantry, organized and administered by the Department of Militia and Defence under the Militia Act of Canada.

The Royal Military College is based upon the authority of a special Act of the Federal Parliament called the R. M. C. Act, and provides for a scientific education necessary for the equipment of a military officer, and so should take place under discipline and military environments in which a limited time should be devoted to the military training which is provided at the military schools above referred to.

The Educational building which I, associated with General Perreau as Commandant, originated and planned has been but partially completed and it is to be regretted, if the policy of the Government is to be carried out that there should have been a halt in the building operations designed to meet the requirements intended to fulfill the definite plan of educational development. The portion of the building built was occupied last October and the Classes distributed as far as possible to proceed with the new work. We found that the plans provided in the whole building included

a draughting room in the top storey of the uncompleted wing, so that we were handicapped during this year in the very important development of drawing, upon which so much of the educational development of a military officer depends. I regret that the Commandant could not see his way clear to permit us to use the Assembly Hall, which was sufficiently spacious to accommodate the drawing classes, and we were compelled to improvise perfectly inadequate accommodation for this important section of our work, and in so doing we were unable to divide one class into sections wherein individual instruction could be given, as the class-rooms, which were intended for that tutorial purpose, were usurped by the necessity of being converted into draughting rooms.

The educational staff was completed last autumn but lack of experience with our system was inevitably present so that it was necessary to indicate by example as far as possible the method of instruction essential to carry out the tutorial system provided for in the new building. The recently joined members of the staff were thus placed to a large extent in the position of observers of the pedagogical methods which we found most efficient in presenting the fundamental scientific subjects to the gentlemen cadets in attendance. As far as my time permitted, I devoted myself to giving illustrated lectures in the various scientific branches, with a view of inspiring them with the character of a presentation which my experience had taught me was most effective.

Just how much was achieved in this effort can only be determined by a practical application which must be observed during the next academic term. I have asked the professors presiding over the destinies of the department of mathematics and physics and chemistry and of engineering to submit to me for your information their appreciation of the efforts made.

At the beginning of last term, I recommended Lt.-Colonel Schmidlin, a distinguished graduate of this college, whose career as a cadet attracted my attention by the brilliancy of his academic standing and by his natural ability of a pedagogical character, to the appointment of professor of engineering, feeling certain that in time he would preside over this scientific department with credit to himself and advantage to the R.M.C. educational system. I assisted him and his staff as far as I could by giving them the result of my experience here in presenting to the gentlemen cadets instruction in the subjects of his department, by a series of lectures in which I indicated that the first class could cover the important subjects of strength of materials with a scope greater than was ever attempted before. This was made possible by my familiarity with the foundation with which they had been provided in the earlier years of their course, out of which knowledge, the maximum achievement could be realized. I then placed a class in Colonel Schmidlin's hands and that of his staff and observed them in the presentation of various subjects of his department. It is a matter of great satisfaction to me to be able to report that Colonel Schmidlin and his staff have realized more than my expectations and I predict for this brilliant educationalist a career here which will meet with the approval of those responsible for the engineering work attempted at this institution in the future.

Professor Day of the department of physics and chemistry is a most energetic and enthusiastic exponent of these scientific subjects, so essential to the educational equipment of a military officer, and I have every reason to believe that under his enthusiastic guidance, with the two able instructors provided for him this year, that he will maintain that department in such a state of efficiency as to attract the attention of the scientific world.

Colonel Dawson, who presides over the destinies of the department of mathematics has perhaps the least spectacular duties to perform, and yet the most indispensable from an utilitarian point of view, since the foundation of scientific work must eventually depend upon the mathematical training for which Colonel Dawson and his staff assume the responsibility. He is an accomplished mathematician and a distinguished educationalist.

This is probably my last opportunity, as director of studies, to make this observation. The superior staff of the Royal Military College is composed of civil and military members. The military members of the staff are temporarily employed, whereas the civil members are engaged permanently. This is an unique position, inasmuch as a civil member of the staff can never hope to rise to the highest position here, namely, commandant of this college, nor do I consider that temporary experience on this staff, such as a military officer has will prepare him to assume the technical duties appertaining to the advisory and supervisory responsibilities associated with the director of studies. I therefore deem it in the interests of all concerned, that the appointment to the position of director of studies should be invariably a prize which should be the ambition of every civil member of the staff to obtain, for during his experience as a teacher presiding over the destinies of one of the scientific departments he would be encouraged to prepare himself for this honour as a fitting termination of his duties here. He would thus read more broadly, think more universally and interest himself more comprehensively in all the subjects with which the education of a gentleman cadet is associated.

This technical officer should have the responsibility of advising the commandant and directing the studies, and where the commandant does not feel it in the interests of the general policy to accept his advice, this conscientious difference of opinion should be submitted for the opinion and final adjustment to the Minister in Militia Council. This power of appeal of the director of studies is in my opinion of vital importance in view of the fact that the commandant is able to hold him responsible for the academic standing of the cadets at the college and when they approach the universities for academic recognition, this academic result is revealed.

I have had many representations made to me by enthusiastic heads of departments that the gentlemen cadets of the various classes were not as interested in their studies as was desirable and upon inquiry being made as to the cause, it has been invariably given that the many distractions which the gentlemen cadets are subject to contribute materially to this effect. I therefore submit that the academic work be permitted to take place as far as possible by eliminating unexpected privileges of a social nature and that respite from their studies be made at regularly designated intervals. This question has been taken up and concurred in every time your academic board has been assembled.

To carry out the scheme of co-operation, it was suggested to the staff in the department of artillery that it might be an academic advantage if a representative of that department could avail himself of the instruction given in the department of mathematics when the subjects of statics and dynamics were being presented. To this suggestion, Captain W. J. Finney, O.B.E., R.C.A., instructor in artillery, responded, and attended, with much advantage to himself the lectures given in the department of mathematics in these subjects from their initial stages. Captain Finney showed a special aptitude in grasping the principles of these subjects, which are of such great academic importance to him in the scientific development of the principles underlying artillery science. I wish especially to commend his energy and interest in preparing himself for the educational work with which he will be associated on the staff here.

There is a condition obtaining here which I feel it my duty to explain. General Perreau and I were asked to co-operate in designing an academic establishment for teaching purposes which would be necessary for the accommodation of 300 gentlemen cadets in attendance. The present establishment for teaching purposes has been realized under the decision arrived at by us, but the halting of the building operations took place quite unexpectedly so that the anticipation of the scheme of educational development effecting this teaching staff was made prematurely. The consequence is that unless the policy of the Government respecting future developments at this college is continued, that it would appear we have an overmanned staff in many ways,

and I consider it appropriate to suggest that it might be made the subject of expert opinion in readjusting the conditions. It is obvious that a staff designed to accommodate 300 cadets must necessarily appear conspicuously over-estimated when but half that number are in attendance and can be accommodated.

As a last word, I would like to put on record my very high appreciation of the sympathetic co-operation which the staff generally accorded me. Any success which I may have met in developing the educational status of this college is due entirely to that conscientious effort on the part of those upon whom I relied for the effects which I think have been produced in the educational results. Inefficiency never is in harmony with efficiency and as I fearlessly and explicitly indicated anything which in my opinion was defective in the presentation of the instruction or the attitude of the instructor, I could not possibly hope to pass through this diplomatic ordeal without in some instances meeting with a slight indication of the effects of wounded vanity, but in the main I consider that I was most fortunate indeed in the staff, which almost invariably supported me in the application of the educational principles to my entire satisfaction.

APPENDIX G

REPORT OF THE ADVISORY BOARD, 1922

The Board assembled at the Royal Military College on Friday, June 2, 1922.

Chairman:—General Sir A. W. Currie, G.C.M.G., K.C.B., etc., etc., etc.

Members:—Senator, the Honourable Hewitt Bostock; Lieut.-Colonel R. B. Eaton; Brig.-General D. M. Ormond, C.M.G., D.S.O.; Lieut.-Colonel and Canon Ad. Sylvestre; Lieut.-Colonel W. J. Osborne; Hon Mr. Justice F. Hazzard; Lieut.-Colonel W. J. Wanklyn; Rt. Rev. J. C. Roper, DD., Bishop of Ottawa; Commissioner A. B. Perry, C.M.G., A.D.C., R.C.M.P.; Rt. Rev. Felix Couturier, O.B.E., M.C., Bishop of Alexandria; Major-General J. H. McBrien, C.B., C.M.G., D.S.O. (Chief of the General Staff); Lieut.-Colonel C. L. Panet (representing the Deputy Minister).

Secretary:—Captain Stuart C. Bate, The R.C.R.

The following members expressed their regrets at not being able to attend:—Sir Augustus M. Nanton, K.B.; E. W. Beatty, Esq., K.C.; Dr. A. C. Mackay; G. F. Pearson, Esq., LL.B.; Major-General Sir John M. Gibson, K.C.M.G.

The Board assembled at the College on the above-mentioned date and was met by the Commandant and members of the Staff.

Several changes were made in the programme as submitted by the Commandant for the Advisory Board, owing to the rainy weather.

1. Examination for Entrance, R.M.C.

The Board gave consideration to the New Regulations governing entrance to the Royal Military College which are now in force for the first year, but was divided in its opinion as to whether in the case of the Province of Quebec the allotment of vacancies should be subdivided between "French" and "English" speaking candidates. In view of all the circumstances, the Board recommends that as these Regulations are now in force and the examinations in some of the provinces have commenced, that no change be made at present, but that this matter be brought up before the Advisory Board again next year.

2. Educational Conference

The Board approves of the suggestion of the Commandant that permission be sought from the President of the Conference of Canadian Universities "to have the Royal Military College represented at that Conference by one member of the academic staff of the Royal Military College."

3. Servants

The Board again concur in the recommendation of the Commandant with regard to the Servants at the College, which is as follows:—

> "That the Royal Military College servants should be placed on a military basis and that in order to accomplish this, they should be enlisted in the non-permanent active militia and attached as supernumerary to the establishment

of a non-permanent unit and shown on command to the Royal Military College as members of the active militia permanently employed. The enlistment of these servants in the non-permanent active militia is recommended for the reason that it is felt that in some cases the categories of the men employed for this position would not permit of their enlistment in the permanent active militia. The Board consider it would be a distinct advantage to the College to place the servants on a military basis, more especially from a disciplinary view."

4. Instruction of Shorthand and Typewriting to 4th Class

The Board is of the opinion that there is not sufficient time available under the present syllabus of training for the recruit class to be instructed in shorthand and typewriting, but decided that this question should be left to the Academic Board to submit a report for the next meeting of the Advisory Board.

5. Royal Military College Calendar

The Board strongly recommends that there should be an R.M.C. Calendar printed, which could be sent out to all the Educational Institutions in Canada and to the parents and guardians of prospective candidates on application.

6. Buildings, Dormitory Accommodation

The Board again approves of the recommendation of the Commandant, and strongly recommends that the Fort Frederick dormitory building be completed by the addition of the two wings without delay, and it is further recommended that in resubmitting his request, the Commandant should state the following, which appears in his Annual Report for 1921-22:—

> "This is most essential, since we will be unable to take in the average number of recruits in 1923 unless further accommodation to the College is provided. It is pointed out that admission to the College is governed entirely by the number of vacancies caused by Cadets leaving, and only 15 Gentlemen Cadets will graduate in 1923."

7. College Transport

The Board strongly recommends that steps be taken by Militia Headquarters to procure a motor truck for use at the College to replace the one which is now unserviceable.

8. Training

Military Engineering.—The Military engineering, demolitions, wiring, rock drilling and diving, as presented before the Board, were considered to be of an excellent character.

Cavalry.—On account of the rainy weather and the poor condition of the ground, the inspection of the 1st and 2nd classes, as a cavalry squadron, had to be cancelled.

Artillery.—The artillery gun drill, as presented by the 4th class, was very efficiently and well carried out.

Infantry Drill and Ceremonial.—The Board viewed with great pleasure the very smart manner in which the gentlemen cadets carried out their performance of infantry drill and rifle exercises.

Gymnastic Display.—The Board viewed with satisfaction the excellent work carried out in the gymnastic display, as presented by all the cadets.

9. Physical Condition of Gentlemen Cadets

The Board examined the medical records of the College and found that the health of the cadets for the past year had been very good.

10. Discipline

The discipline for the last year at the College was found to have been excellent as disclosed by the conduct sheets for the gentlemen cadets.

11. Academic Instruction

The Board gave earnest consideration to the number of hours per week devoted to academic work as compared to the number devoted to physical training and military exercises. The Board also took under consideration the total number of hours per week which the cadets were required to attend for instructional purposes. The Commandant gave the assurance that during the coming year he and the Academic Board would give both these matters their serious consideration, and that a report on them would be submitted to the Advisory Board when they assembled in 1923.

The Board were very much pleased and were very much impressed by all they saw at the College and again wish to place on record their high appreciation of the services rendered the College by the Commandant and Staff.

All of which is respectfully submitted.

A. W. CURRIE,
Chairman Advisory Board, R.M.C.

HEWITT BOSTOCK,

R. B. EATON,

D. M. ORMOND,

AD. SYLVESTRE,

W. J. OSBORNE,

F. L. HASZARD,

F. L. WANKLYN,

JOHN CHARLES ROPER,

A. BOWEN PERRY,

FELIX COUTURIER,

J. H. MacBRIEN,

C. L. PANET,
Members Advisory Board, R.M.C.

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REPORT

OF THE

DEPARTMENT OF THE NAVAL SERVICE

FOR THE

FISCAL YEAR ENDED MARCH 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 17a—1923]

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander-in-Chief of the Dominion of Canada.

May it Please Your Excellency:

I have the honour to submit herewith for the information of Your Excellency and the Parliament of Canada, the Twelfth Annual Report of the Department of the Naval Service, being for fiscal year 1921-22.

I have the honour to be,

Your Excellency's most obedient servant,

GEORGE P. GRAHAM,
Minister of the Naval Service.

Ottawa, Ontario, June 30, 1922.

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REPORT

OF THE

DEPARTMENT OF THE NAVAL SERVICE

FOR FISCAL YEAR 1921-22

OTTAWA, June 30, 1922.

Honourable GEORGE P. GRAHAM,
Minister of the Naval Service,
Ottawa, Ont.

SIR,—I have the honour to report on the Department of the Naval Service for the fiscal year 1921-22, under the following headings:—

1. Royal Canadian Navy.
2. Fisheries Protection Service.
3. Survey of Tides and Currents.
4. Hydrographic Survey.
5. Radiotelegraph Service.
6. Stores.
7. Financial Statement.
8. Canadian Arctic Expedition.
9. General.

1. ROYAL CANADIAN NAVY

ROYAL NAVAL COLLEGE OF CANADA

The Royal Naval College of Canada was established at Halifax, N.S., in 1910, and Commander A. E. Nixon was placed in charge.

Examinations for cadetships have been held each year by the Civil Service Commission since the establishment of the college. The following is a statement of the number of cadets who entered the college each year:—

January,	1911	21
"	1912	10
"	1913	8
August,	1913	1
"	1914	8
"	1915	6
	1916	14
	1917	20
	1918	16
	1919	17
	1920	15
	1921	11

Arrangements were under way to hold the usual cadetship examinations in June, 1922, but, owing to the decision of the Government to close down the Naval College, the holding of the examinations was cancelled. Twenty-six applications for entry to the cadetship examinations in June, 1922, were received by the Civil Service Commission.

Although graduated cadets, who entered the college after 1913, were not obliged to adopt a naval career, all those who successfully passed the Naval College course from its establishment up until the end of the 1918 term adopted the Navy as a profession. At the termination of the war, however, a number of them dropped the naval career and took up civil avocations.

Arrangements were made in 1914 with the Universities of McGill and Toronto, and later with Queen's University, whereby Naval College graduates were allowed to enter these universities, without examinations, in the second year of the course of Applied Science.

In the fall of 1919, one naval cadet; and in 1920, seven naval cadets entered McGill University under this arrangement. Three naval cadets entered Toronto University in 1921.

In April, 1922, when it was decided to discontinue the Naval College, the arrangements with the Universities of McGill, Toronto and Queen's were extended so that second year naval cadets were permitted to enter, without examination, the first year of the course of Applied Science. The University of British Columbia agreed to similar arrangements and also to permit first year cadets to enter the first year Arts Course.

The course provided at the Naval College was of a high standard and naval cadets have been successful both in naval and civil life.

In 1917, the Halifax explosion wrecked the Naval College buildings to such an extent that they were no longer habitable. The college year was completed at Kingston and in the fall of 1918, the college was established at Esquimalt, B.C., where it continued in operation up to its close in June, 1922.

Commander A. E. Nixon, who has been in charge of the Royal Naval College since its establishment, has been highly successful in organizing and maintaining the establishment in an efficient condition and the successes attained were largely attributable to his zeal and ability. The naval professors at the college also deserve credit for the painstaking manner in which they performed their duties.

The health of the cadets at the Naval College has, throughout, been exceptionally good. This is attributable to two main causes:—

Firstly—The very high standard of physical fitness required of cadets on entry to the college, and,

Secondly—To the regular hours and training.

The Naval College has, during the whole period of its operation, been a success and it has accomplished in a high degree the objects for which it was established.

ROYAL CANADIAN SHIPS

At the beginning of the fiscal year 1921-22 H.M.C.S. *Aurora*, *Patriot* and *Patrician* were at Esquimalt, having completed the long cruise from Halifax via Panama canal in March, 1921. After refit at Esquimalt the squadron proceeded to Comox, Vancouver Island, where forty men from the *Aurora* and ten from each of the two destroyers went ashore and carried out rifle target practice and disciplinary training. This training produced great improvement in the discipline and general bearing of the crews, especially the boys and ordinary seamen. During the same period (April 14 to May 10, 1921) the ships also carried out general drill, including gunnery and torpedo practices.

The squadron left Esquimalt on June 3, 1921, for Halifax, where it arrived on July 30, 1921. Visits were paid en route to Astoria (Oregon), San Pedro (California), Magdalena Bay (Lower California), Acapulco (Mexico), Salina Cruz (Mexico), Punta Arenas (Costa Rica), Panama, Kingston (Jamaica), and Bermuda.

During this cruise, exercises were performed whenever the state of the weather permitted, including night-firing, tactics, and range taking exercises.

At Magdalena Bay an extensive programme of general drills, boat pulling, torpedo and gunnery exercises, was carried out. Permission to carry out these exercises was courteously granted by the Mexican local officials. The exercises were of value in improving the fighting efficiency of the squadron.

On arrival at Halifax, a series of combined exercises were arranged with the military garrison and local air force from the 22nd to the 26th August, 1921. These exercises included all the steps that would have to be taken for the defence of Halifax Harbour—

(1) During a period of strained relations with a foreign power;

(2) On the outbreak of hostilities, and,

(3) For the control of shipping entering and leaving Halifax in war.

They were carefully worked out in detail beforehand and showed the possibilities for co-operation between the three forces in the defence of Halifax Harbour.

Submarines CH 14 and CH 15, which had been commissioned on March 3, 1921, took an active part in these exercises. The majority of the crews of these ships were obtained by local recruiting and were trained by a Lieutenant, R.C.N., who had served during the war in the Imperial Submarine Service.

After the completion of the joint exercises at Halifax the Canadian Squadron cruised to Montreal where they were inspected by the Governor General and the Minister of the Naval Service. The ships were opened to the public for several days and were visited by large crowds.

They also visited St. John, N.B., where they were inspected by the Lieutenant-Govenor of the province and the mayor of St. John city. Various other ports of the Maritime Provinces were visited.

The two submarines left for Bermuda in November 1921, and the *Aurora* *Patriot* and *Patrician* joined them there in December, 1921.

During the passage of the squadron to Bermuda a severe hurricane was encountered. The sea was so violent that the ships were obliged to run before the gale. They came through the test in excellent condition and demonstrated most completely their seagoing qualities.

During their cruise in the West Indies, every available opportunity was taken to carry out gunnery, torpedo and tactical exercises. The presence of the Imperial Light Cruiser Squadron offered an excellent opportunity for combined exercises on a large scale. These exercises are of great value in the training of the squadron.

During the whole year, wherever the squadron visited, a warm welcome was extended to the officers and men. The ships were crowded with visitors on all occasions when the public were admitted to them and the general impression created was excellent.

The activities of the squadron during the past year may be summarized as a steady progress towards fighting efficiency. The high standard of discipline and conduct of the men and the efficiency of the squadron itself, has created an impression that reflects credit, not only on the officers and men of the Squadron, but also on the Dominion of Canada whose representative it is.

The health of the officers and men of the Canadian Squadron has been excellent throughout the year.

The following is a statement of movements of the ships of the Canadian Squadron during the year:—

Ship	Place	Arrived	Sailed
		1921	1921
Aurora	Esquimalt	...	April 14.
Destroyers	"	...	April 16.
Aurora	Comox	April 14	May 11.
Destroyers	"	April 17	May 10.
Destroyers	Nanaimo	May 10	May 12.
Squadron	Esquimalt	May 12	
Aurora	"	May 12	June 3.
Patrician	"	May 12	June 3.
Patriot	"	May 12	June 7.
Aurora	Astoria	June 4	June 11.
Patrician	"	June 4	June 7.
Patrician	Portland, Ore	June 7	June 11.
Patriot	"	June 8	June 11.
Squadron	San Pedro	June 14	June 16.
"	Magdalena Bay	June 18	June 23.
"	Acapulco	June 26	June 30.
"	Salina Cruz	July 1	July 3.
"	Punta Arenas	July 6	July 9
"	Colon	July 11	July 12.
"	Jamaica	July 14	July 18.
"	Bermuda	July 22	July 27.
"	Halifax	July 30	
Aurora	"	...	Aug. 10.
Patrician	"	...	Aug. 10.
Patriot	"	...	Aug. 15.
Aurora	Sydney, C.B	Aug. 11	Aug. 15.
Patrician	"	Aug. 11	Aug. 15.
Squadron	Charlottetown	Aug. 16	Aug. 19.
"	Halifax	Aug. 20	Aug. 27.
"	Gaspé	Aug. 29	Aug. 30.
"	Montreal	Sept. 1	Sept. 8.
"	Quebec	Sept. 9	Sept. 14.
"	Halifax	Sept. 17	Sept. 20.
Submarines	"	...	Sept. 20.
Squadron and subs	St. John, N.B	Sept. 21	Sept. 25.
"	Halifax	Sept. 26	
Patriot	"	Sept. 25	Sept. 26.
Patriot	Baddeck	Sept. 27	Sept. 28.
Patriot	Halifax	Sept. 29	
Submarines	Halifax	Sept. 26	Nov. 23.
"	Bermuda	Nov. 28	
Squadron	Halifax		Dec. 10.
"	Bermuda	Dec. 14	Dec. 27. 1922
"	St. Kitts	Dec. 31 1922	Jan. 3.
"	Roseau (Dominica)	Jan. 4	Jan 6.
"	Barbados	Jan. 7	Jan. 16.
"	Grenada	Jan. 17	Jan. 19.
"	Trinidad	Jan. 19	Feb. 21.
"	Demerara	Feb. 22	Mar. 1.
"	Trinidad	Mar. 4	
Aurora	Trinidad	...	Mar. 7.
"	Tobago	Mar. 7	Mar. 9.
"	Trinidad	Mar. 9	
Aurora and destroyers	Trinidad	...	Mar. 30.
"	Bermuda	April 4	
Aurora, destroyers and subs	Bermuda	...	April 8.
"	Halifax	April 11	

Owing to the decision of the Government to economize and the consequent reduction in Naval estimates of one million dollars ($1,000,000), the department was obliged to place out of commission the cruiser *Aurora* and submarines. These ships were paid off on June 30, 1922. Officers and men loaned from the Royal Navy returned to England and Royal Canadian Naval officers and men required for the service were

transferred to the destroyers *Patriot* and *Patrician* which are being continued in commission. It is proposed to place one destroyer on the Atlantic coast and one on the Pacific coast. A number of trawlers will be maintained on each coast for mine-sweeping, mine-laying and other port defence training.

The Government announced its intention to establish a volunteer force who would train for a period of three weeks each year, the training to extend over a three year course.

The necessary arrangements are under way to put into operation the policy of the Government.

During the season of 1922 the Government brought down legislation combining into one department, to be known as the "Department of National Defence", the Militia and Defence Department, the Canadian Air Force and the Naval Service Department. Preparatory to the organization of the new department the following branches of the Naval Department were transferred to Marine and Fisheries Department:—

Hydrographic Survey;
Fisheries Protection Service;
Tidal and Current Survey;
Radiotelegraph Service, and,
Patrol of Northern Waters.

This transfer became effective from June 30, 1922.

NAVAL INTELLIGENCE

In April, 1921, by arrangement with the British Admiralty the Canadian Naval Service Department took over all naval intelligence work for the North American continent. An Intelligence Office was established under the Naval Service Department at Ottawa which has now become one of the large intelligence centres in the Admiralty world-wide organization. The department appointed a Supervising Intelligence Officer, who took up his duties on April 23, 1921. Under his supervision new branches of Intelligence work were undertaken, especially with regard to British and other shipping using the trade routes in the Ottawa Intelligence area.

New sources of information were opened up, and the centre is now fulfilling its complete functions as an important link in the Admiralty Intelligence chain.

YOUTHS' TRAINING ESTABLISHMENT, HALIFAX, N.S.

In connection with the development of a purely Canadian Naval Service, a Training Establishment for youths was established at Halifax, N.S., in October, 1921. The officer in command, together with a staff of instructors, were loaned from the Admiralty and, by the end of November, there were 58 youths entered for training as seamen and stokers.

This establishment functioned fully and efficiently throughout the periods in which it was in operation. It was closed in June, 1922, following reductions in the Royal Canadian Navy and boys in attendance not required for service in H.M.C. ships were sent home.

H.M.C. DOCKYARDS—HALIFAX AND ESQUIMALT

Halifax Dockyard.—This establishment carried out its functions in a satisfactory manner throughout the year. The operation of the technical branches under the reorganized system, whereby all classes of trades and workmen were placed under the control of one head, has proved highly satisfactory.

The dockyard carried out repairs and refits to all ships of the Canadian Squadron and also to ships of the Fisheries Protection Service, Hydrographic Survey, Department of Militia and Defence, Department of Marine and Fisheries, Department of Customs and other Canadian Government services. Ships of the Imperial Navy, French Navy, and also vessels belonging to private individuals, were repaired during the year. Various works, other than repairs to ships, have also been performed for the British Admiralty, American Government and departments of the Canadian Government and private individuals.

Esquimalt Dockyard.—The activities of this dockyard have been restricted during the year, only minor repairs having been carried out.

GENERAL

The Canadian Navy, including all ships and establishments, have performed their functions in a very satisfactory manner throughout the year.

2. FISHERIES PROTECTION SERVICE

The Fisheries Protection Service is maintained for the purpose of protecting Canadian fisheries in Canadian coastal waters and along the international boundary line in the Great Lakes.

Foreign vessels are not permitted to fish within the Canadian three-mile limit or in the Canadian waters of the Great Lakes. United States fishing vessels are, however, under the Treaty of 1818, allowed to call at Canadian ports for wood, water, shelter, or repairs. The patrol of the Fisheries Protection Service is necessary to maintain observance of all fisheries regulations by foreign fishing vessels passing through Canadian waters. A close co-operation is maintained between the Fisheries officials, Customs officers, and the Fisheries Protection officers, in order to ensure the strict observance of the Canadian regulations.

EAST COAST

On the east coast fisheries protection patrol was carried out by the *C.G.S. Arleux* and *C.G.S. Arras.*

C.G.S. Arleux.—*C.G.S. Arleux*, under command of Captain W. J. Milne, patrolled to the west of Halifax, to and including the Bay of Fundy. This ship carried out scouting operations in connection with the mackerel fisheries during May and June, 1921. The salmon and herring fishing fleets were also looked after and a careful watch for illegal fishing was kept up. A large number of vessels were boarded under authority of the Fisheries and Customs Acts, and in some cases fines for infractions of the regulations were imposed.

During the season sixty-eight lobster traps, illegally set, were destroyed.

In August the vessel proceeded to Halifax and took part in the combined exercises of the Military, Naval and Air Forces. During these exercises the vessel was employed on examination and mine-sweeping duties.

Assistance was rendered to twenty-two vessels during the year, mostly during the winter months when the ice was heavy. From January to March ice-breaking duties in the various harbours to the west of Halifax were performed and a number of ice-bound schooners were freed. During the International Fishermen's race off Halifax, the *Arleux* was placed at the disposal of the officials in charge of the race. She also performed calibration work for the Radiotelegraph Branch.

During the year the vessel was under way 1,441 hours and covered 13,505 miles.

C.G.S. Arras.—This ship, commanded by Captain Clement Barkhouse, was stationed to the eastward of Halifax and patrolled the coast waters, including Northumberland strait and the Magdalen islands area. She was commissioned on April 1, 1921, and with the *Arleux* performed mackerel scouting duties during May and June, 1921.

The United States schooner *Hazel M. Jackson* was blacklisted for illegal fishing detected by this ship, which also seized forty-four lobster traps during the season.

The *Arras* worked in conjunction with the Canadian Squadron, Military Forces and Air Service, during the combined exercises in August. The ship also assisted the Radiotelegraph Branch in calibrating off Cape Race Direction Finding Station. In December, 1921, and January, 1922, the *Arras* was engaged off Canso, N.S., for the purpose of rendering assistance to disabled vessels of the fishing fleet. Weather conditions in this district are bad during the winter months and fishing operations are dangerous. The *Arras* was on hand to render assistance as required.

In March, 1922, she was engaged in ice-breaking duties in the small harbours east of Halifax.

During the year the ship was under way 1,402 hours and steamed 12,170 miles.

GREAT LAKES

C.G.S. Becancour, in command of Captain P. C. Robinson, went into commission on April 7, 1921. The headquarters of this vessel is at Port Dover and its commanding officer is in charge of Fisheries Protection operations on lake Erie.

During the season, which lasts from the time the ice breaks up in the spring until the close of navigation in the autumn, the ship seized 195 nets, which were destroyed or sold.

During the year the vessel steamed 906 hours and covered 7,067 miles.

C.G.S. Laviolette.—This vessel was also employed during the year on lake Erie. Captain C. O. Macdonald was in command, with headquarters at Kingsville.

During the season the vessel seized 123 nets, which were sold. During the month of November the ship was engaged in gathering eggs for the fish hatchery at Kingsville.

During the season she was under way 760 hours and covered 5,875 miles.

WEST COAST

C.G.S. Malaspina.—This vessel was in commission on the west coast in charge of Captain Holmes Newcomb.

During the season the *Malaspina* was responsible for the seizure of three American fishing boats and one schooner, the last named for smuggling. The fishing boats were confiscated and the owner of the schooner was fined $1,400 and released.

In addition to fisheries duties, the vessel assisted the Radiotelegraph Service in transferring equipment, etc., from the abandoned station at Triangle island to the new station at Bull Harbour, and by helping with calibration of the various stations on the West coast. It was also used for radiotelegraph and fisheries inspection purposes.

The commanding officers of the Fisheries Protection ships on the West coast were required during the past year to issue permits or licenses to salmon trawlers, 227 of which were boarded by officers of the *Malaspina*, and 105 licenses issued.

The vessel rescued the captain and seven men from the wrecked tug *Queen*, and secured a boom of 800,000 feet of logs in safety.

The vessel also stood by C.G.S. *Givenchy*, ashore in Raven Cove, and accompanied her to Vancouver when floated off.

Ballot boxes for the Federal elections were delivered to various places on the west coast of Vancouver island.

While patrolling the *Malaspina* surveyed and reported to the department three uncharted rocks and also made sketches of two unsurveyed harbours frequented by fishermen.

The vessel steamed 11,811 miles during the season and was under way 1,180 hours.

C.G.S. Thiepval.—This vessel was also on Fisheries Protection duties on the West coast.

The *Thiepval* seized the United States gas boat *Sylph*, of Alaska, and the Canadian boat *Rosina B*, of Prince Rupert, for smuggling liquor. The United States halibut boat *Rescue*, of Alaska, was also seized for fishing within the three-mile limit.

During part of the season the *Thiepval* took on board official photographers for the purpose of obtaining pictures of the halibut fisheries in Hecate strait. The vessel also carried out inspection duties for the Customs Department on the west coast of Vancouver island. Thirty-six permits to salmon trawlers were issued during the season.

The vessel was under way during the season 1,601 hours and steamed 13,191 miles.

The Fisheries Protection Service, including C.G.S.S. *Arleux, Arras, Becancour, Laviolette, Malaspina,* and *Stadacona,* were transferred to the Marine and Fisheries Department to date from June 30, 1922.

3. SURVEY OF TIDES AND CURRENTS

This survey has carried on its work successfully during the past year, and considerable addition has been made to the information on tides available for Canada. In Eastern Canada a series of new tidal stations was established during the season, chiefly in the New Brunswick region. On the Pacific coast the principal work carried out was on the main line of ocean steamships through Boundary pass and Haro strait, on the route from Vancouver to the ocean. The principal tidal stations both in Eastern Canada and on the Pacific coast have been inspected and repaired where necessary. These stations are thirteen in all, and are kept in operation summer and winter. There has also been published during the year a special report on the "Temperatures and Densities in the Waters of Eastern Canada," which has been compiled from all the observations obtained during a series of years, in connection with the investigation of the currents in various regions.

OBSERVATIONS OF CURRENTS DURING THE SEASON OF 1921

Observations throughout Boundary pass, which were commenced in the season of 1920 with a surveying steamer, were continued in 1921 by means of motor launches, as a steamer was not available for the purpose. Camps were established on the shore for the observers, and the observations obtained were limited to the time of the turn at slack water. The points at which the records were made were at East point of Saturna island, at Turn point, off Kellett bluff, and at the southern end of Haro strait off Discovery island. The observations thus obtained have been reduced to practical form by comparing them with the information obtained with the steamer, which enables the velocity and direction of the current to be ascertained, as well as the time at which it turns. The work in both seasons was under the direction of Mr. S. C. Hayden.

The behaviour of the currents in this region is extremely complex, because the tide itself is undergoing rapid modification during its progress through the Gulf islands from Fuca strait to the Strait of Georgia. At the southern end of Haro strait, the current accords in a general way with the tide at Victoria, and at the other extreme off Saturna island it is related to the tide in the Strait of Georgia, which is entirely different in type. It has been possible, however, to determine the salient features in the action of the current at some of the stations above indicated, and this information will appear in the Pacific Tide Tables for next year. It has also been sent at once to shipping companies, pilots on the Pacific coast and others interested.

Further observations at intermediate points in the length of Boundary pass and Haro strait will be obtained during the coming season, with the hope of determining the laws which govern their action, in the endeavour to assist navigators in understanding them.

Observations of the current in Active pass were obtained again last season, as it appeared possible that the behaviour of the current in Boundary pass might accord with this other pass. This did not prove to be the case, however. The results obtained in Active pass are important, however, in showing that the values used for the calculation of slack water are as accurate as can be obtained, since the further observations accord very closely with the previous data.

In Eastern Canada the only observations of the current which were obtained were at Tracadie on the New Brunswick coast. This is a harbour of importance to fishing vessels and data for the turn of the current are valuable to them, as well as for the height of the tide on the bar in the event of their using this as a harbour of refuge during storms.

TIDAL OBSERVATIONS DURING THE SEASON OF 1921

The tidal stations established during the season in Eastern Canada were placed at the head of Chaleur bay, and at other points on the New Brunswick coast. Those in Chaleur bay were at Campbellton and Dalhousie, with a third station situated at Gaspe. On the open coast of New Brunswick the two stations established were at Tracadie and Buctouche. The object of these is chiefly to ascertain the character of the tide on this side of the Gulf of St. Lawrence, and also the point at the western end of Northumberland strait where the tides meet. It was thus definitely established that this meeting point is Buctouche, as the tides in the two directions from this harbour (namely, at Richibucto and Shediac) have opposite characteristics in regard to diurnal inequality, which is the dominant feature in this region. The determination of this meeting point will indicate the limit between tides of different types, and will throw light upon the progress of the tide in this region.

One of the important results obtained by such observations is a good determination of the low-water datum, where this is essential in dredging operations. A considerable amount of dredging of channels has been carried out, or is contemplated, at Campbellton, Tracadie and Buctouche. The possible extreme level to which the tide may fall is also valuable in this connection. These gauges were erected and the new observers were instructed in their duties by Mr. H. W. Jones.

Through co-operation with the Hydrographic Survey, observations of the tide were also obtained at Seven islands, Ellis bay in Anticosti island, and at Amherst harbour in the Magdalen islands. Also, on the Pacific coast, tidal data were obtained at two new localities with tide gauges supplied to the Hydrographic Survey. One of these is near the northern end of Vancouver island at Quatsino sound, and the other on the mainland side of Hecate strait.

On the Fraser river, registering tide gauges of an improved type have been supplied to the Public Works Department, as the gauges originally designed for that important waterway were worn out. These have been placed at Garry point at the entrance to the Fraser river and at New Westminster. The tidal record thus obtained will eventually be forwarded to this Survey, after the Public Works Department has obtained from it the essential data which they require.

HUDSON BAY AND LABRADOR

In the early spring of 1921 arrangements were made with the Hudson's Bay Company to establish two tidal stations on the eastern coast of the Bay, where no tidal information is at present available, and to place a third station at Amadjuak in Hudson strait, which is a new locality that it is intended to develop. The necessary arrangements for this are to be made by the courtesy of the Superintendent of Bay Transport, and the gauges when erected will be in charge of Hudson's Bay Company agents. It is thus hoped to obtain tidal information on a stretch of some six hundred miles in a new region, when the record from the tide gauges is received.

Hamilton Inlet.—The expedition to this inlet, which was sent out by the Naval Service Department, was furnished with registering tide gauges and the necessary equipment by this Survey. If there had been more time better arrangements could have been made for the establishment of a reference station on the open coast, with which the tide in the inlet could have been correlated. The deficiency in this respect has made the reduction of the observations a much more difficult problem but some valuable results have nevertheless been secured. One of the most important of these is the discovery that the tide corresponds with Halifax, so far north on the open coast of the Atlantic. The difference in the time of the tide is more constant with Halifax than with other of the Canadian reference stations.

The gauges placed at various points throughout the inlet were erected and supervised by the Hydrographic Survey. The observations were obtained with registering gauges at Broomfield island, east of Rigolette, Caravalla cove above Rigolette, and two others in Melville bay and Goose bay. On the open coast at Indian harbour and at Rigolette itself, scale readings only were obtained and not the continuous record which a registering gauge would have afforded. It was thus necessary in making tidal comparisons with ports of reference to base them upon the record obtained at Broomfield island which was continued for 1½ months. Simultaneous comparisons with Halifax were also based on the record obtained at Caravalla. The observations at Rigolette were then compared with Broomfield and Caravalla in the two directions and a mean of the two taken as the final result for Rigolette itself. The observations further up the inlet, in Melville and Goose bays, were compared with Caravalla; as the small rise of the tide made the time of high water and low water rather indefinite. The greatest range at spring tides is at Indian harbour where it amounts to 6½ feet.

The results obtained for Hamilton inlet were communicated to the Marine Department of the Newfoundland government and to steamship and fishing companies in Newfoundland which trade with that region.

PUBLICATION

The two main editions of the tide tables and the three abridged editions have been prepared and issued as usual. A considerable amount of new information has been embodied in these, based upon further tidal observations as above indicated. The rise of the tide throughout the St. Lawrence estuary below Quebec has been revised on the basis of all information now available, and other additions and further explanations have been added. The circulation of these tide tables is well maintained with some increase in the various editions.

A special publication has also been prepared by the superintendent entitled, "Temperatures and Densities of the Waters of Eastern Canada," based upon investigations by the Tidal Survey in the seasons of 1894 to 1896, and 1903 to 1911.

The densities and temperatures of the water in the Gulf of St. Lawrence, the Bay of Fundy and other regions off the shores of Eastern Canada and Newfoundland, as here published, give the whole of the information of this character which has been obtained to date by the Tidal and Current Survey in these waters. The primary object

in view in taking the observations was to trace the currents and slower movements of the water by these characteristics and in the various reports on currents issued by the Survey, some partial publication has been given from this point of view; but in the present comprehensive form, it may better serve to indicate the character of the waters themselves on these coasts of Canada, and their variations in regard to locality and to change with the progress of the season. This may also be of value in its bearing on the distribution of fish and other marine life, both locally and during the course of the season.

The extended observations in Cabot strait, the Gaspé region and the northeastern arm of the Gulf towards Belle Isle strait, agree in showing that there is a cold layer of water at a depth of 40 or 50 fathoms which remains practically at the freezing point to the end of the season. The warming of the surface water with the progress of the season does not therefore appear to extend beyond a depth of 30 fathoms.

In consequence of this there are extensive bottom areas in the Gulf, running in belts parallel with the shore, which must remain at the freezing point throughout the year, as well as some of the banks which lie at a depth of 30 to 50 fathoms. This no doubt has a bearing upon marine life.

In the deeper channels in the Gulf area, in which the depth runs from 100 to 250 fathoms, the water is distinctly warmer as well as higher in density. This is shown clearly in the more comprehensive tables of deep temperatures and densities in this publication.

Further points of interest are the temperature of the water as it affects the spawn of fish and its hatching, and the dilution of sea water by fresh water, represented by its density, which affects some types of marine life. The consideration of these points will show the depth to which it is necessary to carry observations of temperature and density in this connection.

The spawn of most fish of commercial importance floats on the surface. It is thus directly related to the surface temperature. As to the effect of cold water on hatching, it is generally held by the authorities, that it provides more favourable conditions for the healthy larval development of sea fishes.

The chief bottom spawn is herring and it does not probably extend beyond a depth of 10 or 20 fathoms. Investigations of the water to a depth of 20 fathoms might therefore be sufficient as there is rarely bottom spawn beyond this limit. The depth of 30 fathoms to which these observations of temperature and density were ordinarily taken should thus be ample from this standpoint, as well as for the fresh water influence in ordinary bays and estuaries, which would have any appreciable effect upon shellfish or other marine life.

Some examples are given of the effect of the wind in displacing the warmer water on the surface, after it has warmed up with the progress of the season. Strong off-shore winds may drive the warmer surface water into the offing and allow the cold under-water to come to the surface and replace it. Similar conditions may explain the belt of colder water which not infrequently occurs along the shore, which appears to be due to the off-shore direction of the prevailing winds. At the entrance to the Bay of Fundy where islands and shoals are numerous on the Nova Scotia side, the general effect of the strong currents is to chill the water in the vicinity of the coast by mixing the surface with the colder water from below. It is possible that this lowering of the surface temperature may have a bearing on the formation of fog in this region.

In Belle Isle strait, opportunities were taken to investigate the question of the lowering of the temperature of the water by icebergs. One large iceberg, which was aground in the strait, was examined in a boat, and the temperature of the surface water was taken close round it on different sides. It was found that the water was chilled by only one-half degree on the side from which the water was tailing with the flood current.

Another large iceberg, which was aground near the eastern end of the strait in 57 fathoms of water, showed a lowering of temperature of less than 2° in its proximity, and in another instance this lowering only amounted to 1°.

It is evident that such small difference of temperature found closer to icebergs than a steamer would willingly venture cannot be relied upon as an indication of value, to show that icebergs are near. It was also found that a strong off-shore wind can occasion a greater change in the surface temperature than ever occurs from any other cause. After a gale, a vessel might thus find colder water near the shore than it would meet with in the vicinity of an iceberg, relatively to the general average temperature of the surface water in the region.

CO-OPERATION AND INFORMATION SUPPLIED

The amount of information asked for from this Survey is always increasing, as the Survey becomes more widely known and as the need for new information extends. When any new works are undertaken in our harbours one of the first things required by engineers in designing them is to have data for the tide levels and the extreme rise of the tide. Such information was furnished in connection with the proposed dry-docks in Vancouver and in Esquimalt The results obtained by the investigation of tides and currents are always communicated to the British Hydrographic Office. In this way it appears in the British tide tables and navigators have the advantage of it on their first voyage to Canada, before obtaining our tide tables. The revised value for the rise of the tide throughout the St Lawrence estuary was thus communicated; the character of the tide in the region of Miramichi bay; the results obtained for Hamilton inlet and descriptions of the behaviour of the currents in the passes and straits of the Pacific coast obtained from recent observations. Such information will be embodied in the British tide tables or it will appear in the sailing directions issued by the British Admiralty, which gives wide publicity to it.

Co-operation is also maintained with the Hydrographic Survey in its work both in Eastern Canada and on the Pacific Coast. The endeavour is made to determine a suitable low-water datum in advance of their surveys, so that the reduction of soundings can be definitely made from the outset, without the need of beginning with a provisional datum which might afterwards require to be modified. On the other hand the Hydrographic Surveyors have been very willing to co-operate with this Survey in obtaining further tidal observations at new localities, to which it would be inconvenient to send one of the Tidal Survey Staff, while carrying on work elsewhere.

This Survey has also maintained cooperation with the engineers of the Public Works Department and has utilized the low-water datums established by them wherever practical, especially where the datum has already been used for dredging purposes. In cases where the datum is actually unsuitable, the Public Works engineers have always been ready to modify it in accordance with the better determination that can be arrived at from more extended observations. The Geodetic Survey of Canada has also been obliging in modifying the route of their lines of levelling in order to establish bench-marks, which can be used for reference in tidal work. Arrangements are also being made with that Survey to connect points on the coastline of the Bay of Fundy with their through lines of levelling. This will enable the tidal observations in the upper part of the Bay of Fundy to be brought to true elevations and compared accurately with each other at different localities, which will throw additional light upon the nature of these very important tides. This Survey is also careful to send out promptly any new results arrived at for the benefit of navigation. Some instances of these have already been referred to. It can usually be done without the expense of printing by some extra work in typewriting in the office, or by mimeograph reproduction. In this way the captains of vessels are provided with information in advance of its publication in the tide tables.

INTERNATIONAL RESEARCH COUNCIL

In the spring of 1922 the International Research Council arranged to hold a conference at Rome. This Council was called to consider questions of astronomy, geodesy and oceanography. Dr. W. Bell Dawson, Superintendent of Tidal and Current Surveys, was delegated by the Canadian Government as its representative for the consideration of matters of oceanography.

The conference was held in Rome from the 2nd to the 12th May, 1922. This conference was of special interest because an endeavour was made for the first time to unify the whole subject of dealing with the action of tides and currents. While in Europe, Dr. Dawson also discussed with a number of other eminent scientists the question of improving methods of tidal and current calculation.

The Tidal and Current Survey Branch was transferred to the Department of Marine and Fisheries on June 30, 1922.

4. HYDROGRAPHIC SURVEY

The Hydrographic Survey has charge of surveying the navigable waters of the Canadian rivers and coasts. Field parties operate each season in various localities, taking soundings and preparing other information. From the information compiled, charts are prepared which are available for purchase from the head office of the Hydrographic Survey at Ottawa. Charts have been published for the Great Lakes, the St. Lawrence waterway and tributaries, and for Eastern Canada and British Columbia coast waters.

During the summer of 1921 the following surveying parties were in commission: Atlantic Coast, Lower St. Lawrence, Magdalen Islands, Pacific Coast, Pacific Coast Auxiliary.

Atlantic Coast

Captain F. Anderson, with his assistants, left Ottawa on May 29, joined the *Acadia* at Halifax and proceeded to sea on June 2. Work off Cape Canso, which was uncompleted in 1920, was continued, the party working to the northeast off the southeast shore of Nova Scotia. Owing to continued fog little progress was made during the first month.

Early in June, the Department of Justice requested the Department of Naval Service to undertake a survey of lake Melville, an extensive body of water at the head of Hamilton inlet, Labrador, and the work was allotted to the Atlantic Coast Survey party. In order that is could be completed within the season, the party was enlarged by the addition of three officials and by transferring a shore party working at Seven islands. Additional seamen and gasolene engineers were also engaged. The party thus enlarged left Halifax on July 3.

Accompanying the party was a representative from the Department of Justice and a party under Dr. Kindle, of the Department of Mines, who had been commissioned to procure other information for the Department of Justice. The *Acadia* reached Hamilton inlet on July 13 and a staff tide gauge was immediately erected at Indian harbour.

At Rigoulette, the Hudson's Bay Company post at the head of Hamilton inlet, two shore parties were made up, one to make a survey in detail on a large scale of the narrows connecting Hamilton inlet with lake Melville, and the other to carry on survey work in the vicinity of Carter basin. Suitable accommodation on shore for both these parties was found.

Dr. Kindle and his party also left the ship to carry out his work independently of the steamer, and the representative of the Department of Justice was supplied with a launch to carry out his explorations and left the ship at Northwest river.

The surveying party at Carter basin established automatic gauges at Epinette point and at the east extreme of Rabbit island to determine the tidal effect above and below the Goose bay narrows. They also traversed Goose bay and the upper part of lake Melville and sounded out that body of water, and made observations for tides and measured the currents therein. Water samples for salinity were taken in various places.

The regular survey work from the steamer started immediately, bases were measured, a triangulation was carried from one extreme to the other, signals were erected and a detailed traverse was carried out and the lake was thoroughly sounded. As a result of this survey an accurate chart of lake Melville is now to be had.

On September 25, the Carter basin party completed their work and rejoined the ship and on September 28 the party working in the Narrows connecting Hamilton inlet and lake Melville were picked up.

The party proposed, in addition to the above-mentioned work, to make some examination of the outer Labrador shore and if possible "fix" the position of the range of hills paralleling the coast. This work was not undertaken because the coal ordered failed to reach the *Acadia* in time and there was barely enough fuel on board to enable the steamer to reach the strait of Belle Isle. The coaling schooner was met at port Saunders, Newfoundland, where the *Acadia* coaled up and continued to Halifax where she arrived on October 17.

During the season, weather in lake Melville was fair, few days being wholly unfit for surveying work. After August 1 heavy squalls were experienced and a great difference in temperature was noticed between the lake and Hamilton inlet, it being quite warm on the lake, and owing to the presence of ice, very cold outside. Black flies and mosquitoes were exceptionally numerous and troublesome.

Upon arrival at Halifax, the extra assistants proceeded to Ottawa, superfluous gear was landed and the extra seamen and boat engineers were paid off. The ship then proceeded on October 21 to cape Sable, Yarmouth and St. John. The balance of the month was occupied in sounding off cape Sable and running trial lines across the Bay of Fundy. About 600 miles of soundings were taken in this area. These when plated on the Admiralty chart, agreed quite closely with the old soundings and showed that the reports of inaccurate soundings were not justified.

The Direction Finding Station at Red Head, St. John, N.B., was calibrated and the operator of the station was furnished with a true bearing of Lurcher light-ship.

On November 3 the Direction Finding Station at Chebucto was calibrated. Upon arrival at Halifax the crew was paid off and the ship was laid up for the season.

As a result of the ice encountered in the northern waters, the vessel was docked and painted for preservation during the winter. Upon examination the hull was found in good condition, very little pitting having developed.

Several uncharted shoals were located off County harbour and Whitehead (south-east coast of Nova Scotia), in the early part of the season and Notices to Mariners concerning these were issued.

In lake Melville an area of 910 square miles were sounded, involving 500 miles of line sounding from the ship's deck and 1,000 miles from the boats and launches; 414 miles were traversed and eight rivers were examined for tidal influence.

The samples of water taken for salinity were transferred to the proper authorities in the Fisheries Branch of the Department of Marine and Fisheries and reports thereon will be turned over to the Department of Justice.

LOWER ST. LAWRENCE

Mr. Charles Savary was in charge of this survey and used the steamer *Cartier*, which went into commission on May 21, 1921, and started work off the northeast end of Gaspe peninsula.

A detached party carried out a resurvey of Seven islands until the time it was transferred to the Atlantic Coast Survey for work at Lake Melville. The Lower St. Lawrence party continued survey work throughout the season in the Gaspe area until October 2 when the steamer was laid up. Appendix 1 of this report gives particulars of a new method of sounding which has been developed by this survey.

MAGDALEN ISLANDS

C.G.S. *Bayfield,* in charge of Mr. R. J. Fraser, which had been in previous years used on the Great lakes, was transferred to the Magdalen islands, as the work of the Great Lakes was for the time being completed.

During the cruise from lake Superior to Magdalen islands a new shoal off the entrance to Georgian bay, in the vicinity of Cove island, was located. The boundary monuments in the vicinity of St. Clair river which were, by Order in Council, placed under the jurisdiction of the Hydrographic Survey Branch and which had been disturbed by the building of new roads, were relocated.

On the cruise through the St. Lawrence, small surveys were made of the upper entrance to Cornwall canal, where some shoals were reported and where shoals dredged out had not been recorded. A small resurvey was also made of the upper entrance to Lachine canal with a view of determining the spot on which a steamer had touched in the previous autumn.

The *Bayfield* reached Magdalen islands on July 2, where the survey work was immediately undertaken. The usual triangulation was carried out and large scale plans of Amherst, Grindstone and Grand Entry harbours were made.

Tidal records were obtained and bench marks established at three places, and information was turned over to the Tidal and Current Survey Branch.

In August, assistance was rendered to a reconnaissance party of the Geodetic Survey, with a view to locating triangulation points necessary for their work. Owing to difficulties over fresh waters and long periods of heavy winds the work was very much hampered and it was decided to discontinue operations in exposed waters on August 24.

The party then moved to Miramichi bay, where triangulation was carried out and connected with the survey work of the Public Works Department in Miramichi river. The greater part of the sounding of the outer bay and the entrance channels was completed and noticeable changes in the dredged cut of the ship channel in the outer bay were found since the last survey in 1885.

The vessel was laid up on October 28, 1921, and the surveying parties returned to Ottawa.

During the season the party sounded from the ship 383 miles and from boats 465 miles, in addition to 22 miles of traversing.

The following Magnetic variations were obtained in the vicinity of the Magdalen islands:—

Amherst harbour	27°02′ W.
House harbour	27°04′ W.
Pleasant bay	27°03′ W.
Grand Entry	27°00′ W.

PACIFIC COAST

This branch of the Survey is under the immediate charge of Mr. H. D. Parizeau, who uses C.G.S. *Lillooet,* whilst a smaller party is housed on the small auxiliary steamer *Restless,* in charge of Commander J. H. Knight, R.N.

The *Lillooet* was commissioned on May 1, and survey work, betwen the 3rd and 11th, was carried on sounding south of Victoria, in the strait of Juan de Fuca.

This work having been completed both steamers left Victoria on May 13 and reached Menzies bay (Seymour narrows) on May 15.

A survey of Ripple rock in the middle of Seymour narrows was requested by the Department of Public Works, and because the currents here are very strong and slack water exists only for a few minutes at each tide, Mr. Parizeau decided to use the whole party to carry this operation through, between May 15 and 25. A very fine delimitation of this dangerous obstruction was obtained.

On the 26th, the *Lillooet* reached Quatsino sound and gave some help to Commander Knight in determining positions at the outer entrance to that body of water and at the same time sounded some of the deeper water in the approach. The *Lillooet* left Quatsino on June 2, and reached Queen Charlotte city the next evening. Owing to the non-arrival of some expected gear the party was forced to abandon plans for survey work in the middle of Hecate strait and to take up quarters off Banks island where the season was spent in surveying both in traversing and sounding, an area of 420 square miles.

Owing to the inclement weather the party left Queen Charlotte islands on October 28, and again visited Vancouver to ascertain what shoal spots in First narrows had been removed by the Department of Public Works during the summer and found that most of them had been removed so that a depth of 30 feet may be carried through First narrows with the exception of a small spot marked Parthia shoal. Esquimalt was reached on October 11 and the crew was paid off.

Up to August 1 the weather was fine but after that more than half time was lost through wind and rain. During the season 62 miles were traversed, 482 miles boat sounding and 852 miles ship sounding was done.

After the departure of the *Lillooet* from Quatsino sound, Commander Knight continued his survey of that water and had almost completed it by the end of the season. The party reached Victoria on October 6 and proceeded to lay up. On account of the exposed nature of the coast at the entrance to Quatsino sound the work suffered much interruption by southeast gales and rain so that on the whole more than quarter of the time was lost by weather conditions. Several new rocks have been discovered in this important sound and "Notices to Mariners" relating to them have been issued.

AUTOMATIC GAUGES

This important branch of the Survey is in charge of Mr. Price. As in previous seasons 33 automatic gauges were operated. This season 22 of them gave records during the whole year. Requests for results from these automatic gauges continue to increase and are becoming more valuable on account of the length of the time the gauges have been in operation. Following is a table giving the mean water surface elevations at each of the stations where gauges were in operation.

MONTHLY MEAN WATER SURFACE ELEVATIONS OF THE "GREAT LAKES" AND "ST. LAWRENCE RIVER," BY AUTOMATIC WATER GAUGES IN 1921

Gauge Locations		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
		Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
Lake Superior	Port Arthur	601·93	601·69	601·53	601·70	602·14	602·44	602·57	602·60	602·58	602·37	602·04	601·76	602·11
	Michipicoten Harbour	602·14	601·80	601·62	601·72	602·15	602·42	602·62	602·70	602·70	602·51	602·21	602·03	602·22
St. Mary's River	Above Lock	601·54	601·20	601·02	601·26	601·71	601·98	602·01	602·22	602·20	602·01	601·67	601·48	601·69
	Below Lock	581·07	581·15	581·19	581·04	581·08	581·07	581·29	581·27	581·24	580·99	580·40	580·33	581·11
Georgian bay	Collingwood	579·93	579·72	579·82	580·10	580·41	580·49	580·38	580·19	580·10	579·86	579·47	579·58	580·00
Lake Huron	Goderich	579·97	579·78	579·85	580·17	580·48	580·39	580·40	580·24	580·11	579·83	579·59	579·60	580·03
Detroit river	Isle Aux Pêches	574·57	573·16	574·34	575·06	575·26	575·27	575·18	574·87	574·65	574·32	574·17	574·13	574·58
	Fighting Island	573·88	572·96	573·74	574·38	574·74	574·72	574·65	574·34	573·10	573·70	573·58	573·49	574·02
Lake Erie	Port Colborne	571·81	571·59	571·82	572·44	572·76	572·75	572·74	572·37	572·14	571·75	571·44	571·88	572·12
Lake Ontario	Port Dalhousie		From	5th	246·55	246·77	247·67	246·41	245·93	245·48	245·09	244·92	244·82	Till 20
	Toronto "A"	245·73	245·64	246·04	246·64	246·89	246·74	246·47	246·00	245·55	245·16	245·00	244·93	245·90
	Kingston	245·53	245·36	245·78	246·30	246·61	246·54	246·29	245·86	245·38	245·00	244·67	244·76	245·67
St. Lawrence river	Prescott	244·66	244·35	244·90	245·37	245·67	245·58	245·35	245·01	244·55	244·18	243·76	243·97	244·78
	Iroquois	227·60	227·20	228·13	228·78	229·18	229·13	228·79	228·20	227·52	227·04	226·38	226·72	227·89
	Lock 24	224·28	223·90	224·71	225·33	225·68	225·68	225·47	224·94	224·30	223·89	223·27	223·50	224·58
	Cornwall		From	19th	153·69	153·60	153·52	153·39	153·07	152·64	152·41	152·19	152·18	Till 15
Lake St. Francois	Summertown	152·62	152·09	152·67	152·53	152·46	152·39	152·28	151·69	151·67	151·44	151·26	151·40	152·07
	Côteau Landing	151·66	151·17	151·94	151·93	151·92	151·86	151·70	151·48	151·11	150·94	150·78	151·02	151·46
St. Lawrence river	Côteau du Lac	134·34	134·16	134·65	134·66	134·67	134·58	134·43	134·12	133·75	133·53	133·27	133·66	134·15
	Cedars (P.P.P.)	95·66	95·48	96·09	95·92	95·90	95·95	95·89	95·64	95·40	95·26	95·03	95·27	95·62
Lake St. Louis	Cascades Pointe	69·20	69·37	70·34	70·89	70·60	69·18	68·57	68·18	67·69	67·57	67·56	68·38	68·06
Lake of Two Mountains	Ste. Annes	70·58	70·03	72·38	74·54	74·16	71·47	70·38	69·91	69·36	69·89	70·54	70·78	71·17
Lake St. Louis	Pointe Claire	68·69	68·36	69·65	70·51	70·35	68·93	68·32	67·92	67·43	67·31	67·24	68·02	68·56
	Lachine	67·50	66·90	68·57	69·50	69·32	67·85	67·15	66·73	66·23	66·15	66·02	66·70	67·38
St. Lawrence river	Montreal			From	1st	23·84	21·16	20·14	19·58	18·85	19·03	18·88	Till	18th
	Longue Point			From	1st	22·50	19·73	18·73	18·16	17·51	17·75	17·59	Till	18th
	Varennes			From	1st	21·15	18·20	17·16	16·55	15·91	16·26	16·13	Till	17th
	Lanoraie			From	1st	18·16	15·15	14·17	13·60	13·07	13·53	13·32	Till	17th
	Sorel	16·20	15·20	18·64	18·86	17·68	14·75	13·87	13·32	12·84	13·29	13·44	14·61	15·23
Lake St. Peter	Range Light No. 2			From	1st	16·16	13·19	12·18	11·52	11·06	11·77	11·57	Till	16th
St. Lawrence river	Three Rivers			From	1st	15·60	12·64	11·62	10·91	10·49	11·33	10·98	Till	16th
	Batiscan			From	1st	12·34	9·93	9·12	8·50	8·18	8·83	8·31	Till	15th
	Cap à la Roche			From	2nd	9·58	7·58	6·87	6·32	6·14	6·80	6·25	Till	15th
	Neuville			From	5th	3·78	2·81	2·41	2·02	2·10	2·53	Till	31st	

"A"—Records taken by Toronto Harbour Commission. Elevations are above Mean Sea Level.

During the past year the following new engraved charts were issued from this office:—

No. 412—New Gulf Telegraph Chart.
No. 314—Hecate Strait.
No. 205—South Channel.
No. 315—Victoria harbour.
No. 110—Caribou island to Michipicoten island
No. 316—Esquimalt harbour.

The following charts were placed in the engraver's hands:—

No. 206—The Traverses.
No. 105—Gargantua and Michipicoten harbours.
No. 212—Plans of harbours, St. Lawrence river.
No. 213—Cap Magdalen to Pointe des Monts.
No. 109—Cape Gargantua to Otter head.
No. 115—Lake Superior (general chart).
No. 79—Lake Huron (general chart).
No. 76—Lake Erie (general chart).

The following charts were placed in the lithographers hands:—

No. 12—St. Lawrence river (Bécancour to Champlain).
No. 19—St. John harbour.
No. 312—Granby bay Alice arm and approaches.
No. 15—St. Lawrence river (Cap Lévrard to Ste. Emmelie).
No. 420—Lake Melville.
No. 18—St. Lawrence river (Ste. Croix to St. Antoine)
No. 17—St. Lawrence river (Portneuf to Cap Santé).

The following reprints were received:—

No. 1—St. Lawrence river (Montreal to Longue Pointe).
No. 50—Lake St. Louis.
No. 418—Cape Tormentine to Port Borden.
No. 95—Meldrum point to St. Joseph channel.
No. 90—St. Clair river to Goderich.
No. 53—Lake St. Francis, western portion.
No. 91—Goderich to Chantry island.
No. 305—Masset sound and inlet.
No. 75—Long Point bay.
No. 72—Goderich harbour.
No. 12—St. Lawrence river (Bécancour to Champlain).
No. 84—Parry Sound and approaches.
No. 52—Lake St. Francis, eastern portion.
No. 83—Waubaushene to Western island.
No. 86—Georgian bay to Clapperton island.
No. 100—Georgian bay.
No. 313—Approaches to Skeena river.
No. 7—St. Lawrence river (Ile aux Foins to Ile de Grâce).
No. 101—Head of Thunder bay to Pigeon river.
No. 62—Newcastle harbour to Toronto.

There are now issued by this survey 130 charts of various parts of Canadian waters and the demand therefor, shows a substantial increase.

A new edition of the Catalogue of Charts, with Index Maps has been prepared and is about ready for issue.

Owing to an arrangement with the Printing Bureau a departure has been made with regard to the engraving, in that a part of the staff from that office has been transferred directly to the Hydrographic Survey office and the engraving is done now in close conjunction with the draughting room. This saves time and although the system has not been in use very long it is felt that better results are being obtained.

The Hydrographic Survey Branch was transferred to the Department of Marine and Fisheries on June 30, 1922.

Appendix I

NOTES ON THE USE OF WIRE FOR SHIP SOUNDING

As the resurvey of the lower St. Lawrence progressed towards the gulf, with the increasing depth of the river there grew yearly a corresponding increase in the amount of ship sounding to be done and the standard apparatus employed, though suited to the moderate depths in the upper portions of the river, was found to be neither speedy nor economical.

Sounding from the ship had been carried on to depths of 60 and 70 fathoms by means of the regular deep-sea line with a "Walker's Harpoon Sounding Machine" attached, with which soundings may be obtained with the ship under way. Beyond this depth the Lucas steam sounding machine was used, the employment which meant bringing the ship to a standstill, with a consequent loss of time, and if in a tidal stream, the ship drifting out of position. The deep sea line employing the Walker's machine has of late years been of inferior quality and unable to stand the strain from the heavier leads and greater depths.

To devise a speedy and more economical method of sounding in the deeper water, experiments were carried on, using a wire instead of the deep sea line, in depths of about 250 fathoms. These proved successful, and for the past two seasons practically all the ship sounding on the lower St. Lawrence was done with a wire and the apparatus of which the following is a detailed description:—

The submarine sentry as manufactured by Cowbro and Scrutton, was used as a sounding drum and proved to be very satisfactory for the purpose. It possesses sufficient strength for constant daily use; its drum is well balanced, easily rotated, and is large enough to carry five or six hundred fathoms of wire of the size used. It has a strong friction band brake which readily controls both the descent and the heaving in of the sounding lead.

The submarine sentry is a two-speed winch. To take a cast the main drum is thrown out of gear and rotates freely through the action of the sounding lead dropping. For heaving in, a pulley on the end of the high power geared spindle is connected by a swifter to a steam winch, or preferably by a belt to an electric motor.

Two different kinds of wire were employed. One, the Thompson Sounding Machine standard 7 strand, flexible steel wire, diameter .06 of an inch with a 45 pound sounding lead; and the other the regular one-strand submarine sentry wire and with it a lead weighing 65 pounds. The outer end of the wire had a swivel and to this was attached the registering apparatus. This was the Walker's Harpoon Sounding Machine with lead attached, and thus arranged it was found to operate very satisfactorily. The particular Walker's Sounding Machine in use last summer showed an error of 4 per cent, this error being constant for all depths sounded.

To take a cast with the submarine sentry and sounding machine thus arranged, the friction brake on the sentry was released freely and the lead and wire sank at a uniform rate of about 18 feet per second. There was practically no tension on the wire, as was evidenced by its going down in a wavy line. The ship was kept under way ahead at a speed of 7 knots, and in a depth of 200 fathoms the lead took about 70 seconds to reach the botton. At this speed of the ship and depth of sounding the length of wire paid out was 315 fathoms. The lead having reached bottom, it was hove in at the rate of 8 feet per second. The total time consumed in obtaining the sounding was 5 minutes, and in this time the vessel travelled about 6 cables.

To check the accuracy of the result and guard against errors due to the machine as thus used, a registering dial was connected to the main drum of the sentry. The dial registered the length of wire paid out. The ship's speed was kept as constant as possible, by means of the engine revolutions, and a constant soon derived, which,

when applied to the length of wire paid out, gave the vertical depth, or sounding. By this means the check on the accuracy of the Walker's Harpoon Sounding Machine was obtained.

The wire used weighed about 16 pounds per 1,000 feet, and with 300 fathoms paid out and hove in at the rate of 8 feet per second, the tension of the wire was found to be 125 pounds.

With no difficulty casts of over 225 fathoms were obtained with this sounding apparatus whilst the ship was travelling at a speed of 7 knots.

The principal advantages gained in the use of this apparatus for ship sounding are: greater ease and less difficulty in holding the ship to the desired course and line to be sounded, an increase in the daily mileage of soundings, and economy of fuel. The vessel can be kept at a uniform, economical speed and sound a larger area in a day, and with less expenditure of fuel than used in the older method of sounding where a higher maximum speed was maintained between soundings and the vessel stopped and engines reversed at every cast of the lead.

5. RADIOTELEGRAPH SERVICE

The work of the Radiotelegraph Branch comprises the design, construction and operation of stations on the East coast, Great Lakes, Hudson bay and West coast; the licensing of all private radio stations in Canada and on Canadian ships; the inspection of all licensed stations in Canada and ships plying to Canadian ports to see that they are complying with the International and Canadian regulations, and in the case of ships to see that they comply with the section of the Radiotelegraph Act which calls for the compulsory equipment on certain classes of passenger vessels irrespective of nationality carrying Canadian passengers; the examination of all commercial and amateur operators for certificates of proficiency in radiotelegraphy and the administration of the Radiotelegraph Act.

The primary object of the Radiotelegraph Service is to provide facilities for communication with ships at sea and thus assist in their navigation and the safeguarding of the lives of people they carry. The service also undertakes the handling of commercial messages with ships and also provides means of communication with points not reached by existing land telegraphs, a notable instance of the latter being the Queen Charlotte islands.

The existing service comprises nine stations on the Pacific coast, eight on the Great Lakes and twenty-three on the river St. Lawrence and East coast, including four Direction Finding stations. There are also two stations at Lepas and Port Nelson, Man., respectively, which are temporarily closed. A commercial service with Bermuda is provided via the station at Barrington Passage, N.S., which station also maintains a "long distance" service to ships at sea.

All of the thirty-seven coast stations (that is stations for communication with ships at sea) and the land stations at Lepas, Man., are owned by the Government. Those on the Pacific coast, Hudson bay, Halifax dockyard, Barrington Passage, N.S., and the four Direction Finding stations on the East coast, seventeen stations in all, are operated directly by the Department of the Naval Service, the stations on the Great Lakes and the remaining stations on the East coast, twenty-five in all, are operated by the Marconi Wireless Telegraph Company of Canada, Limited, under contract.

The four Direction Finding stations on the East coast in connection with the navigation of ships at sea continue to give satisfactory results. These stations have undoubtedly prevented wrecks and are a most useful and reliable aid to navigation. The operation of these stations requires a highly skilled and experienced staff, and from numerous letters received by the department it would appear that the service

given by the Canadian stations would compare favourably with that given by similar stations in the United States, England and other countries. That the service is appreciated by navigators is demonstrated by the number of bearings asked for. Cape Race, for instance, has given as many as forty ships their bearings in a single day.

The scheme of dividing the ten stations on the Pacific coast into two groups, one to handle "ship to shore" business and the other "interstation" or ordinary telegraphic business, proposed last year, is being proceeded with. this reorganization being essential for the preservation of the efficiency of the "ship to shore" service, which is seriously congested with ordinary telegraphic business. Under this scheme the low-power station at Ikeda Head was closed on September 15, 1920, and the low-power station at Pachena Point temporarily closed on October 23, 1920. Similar action with regard to the Cape Lazo station will be taken as soon as possible, with consequent saving in running expenses. These three stations have been in operation since 1909, but the greatly increased range of modern ship sets now permits the closing of them without impairment of service.

The power of the Estevan Point station, on the west coast of Vancouver island, was increased to provide adequate facilities for communication with trans-Pacific ships fitted with modern apparatus. Operation of the station on storage battery was commenced on March 27, 1922, with excellent results.

It is proposed to erect a complete new station in the vicinity of Vancouver to act as a terminal station for the inter-station group, thus relieving the congestion which now exists at Point Grey; the work of the latter station would, on completion of the new Vancouver station, be confined exclusively to ships. The proposed new station will have sufficient range to work directly with a similar station on the Queen Charlotte islands and with any other point on our Pacific coast.

The Government owned and operated station at Barrington Passage, N.S., continues to provide a commercial service with Bermuda on a wavelength of 4,200 metres C.W. and a long-distance commercial service with ships at sea. This station maintains continuous watch on 2,100 metres C.W. except during commercial traffic routines with Bermuda at 12.30, 4.30, and 8.30 a.m. and p.m. G.M.T., and during H.M. ship watch routines on 2,400 metres for fifteen minutes commencing 0345 G.M.T. and every subsequent four hours. Barrington also transmits weather forecasts on 1,600 metres sparks at 1.30 and 13.30 G.M.T. The department has continued its policy of maintaining the apparatus on the different stations up to date and the service continues to maintain a degree of efficiency which compares favourably with that obtained elsewhere.

The administration of the Radiotelegraph Act with which the department is charged has been carried on as usual and no evasions or attempted evasions of section (4) of the Radiotelegraph Act, calling for the compulsory equipment of Radiotelegraph apparatus on certain steamers have been reported. The following amendment has been made to the Radiotelegraph Regulations:—

> Radiotelegraph Regulation No. 104. Amendment. Paragraph (*i*) of section (*a*) of Radiotelegraph Regulation No. 104 is hereby cancelled and the following is substituted therefor, effective February 15, 1922:—
>
> > (*i*) When direct communication by messenger, visual signals or other method between ship and shore is impracticable and then only for the purpose of exchanging with the nearest coast station messages relating exclusively to the business of the ship.

A Radiotelegraph Inspection Service is maintained by the department and vessels are regularly inspected to see that the law is being complied with.

Permanent inspectors are maintained at Victoria, Ottawa, Halifax, Montreal (summer), and St. John (winter). These inspectors in addition to inspecting all ships and licensed stations in their district, also undertake the examination of operators for certificates of proficiency.

All land stations are inspected at least once a year and all ships whenever they are in port. Examinations of operators are held at the above points and at other centres when a reasonable number of candidates can be gathered together.

Part-time inspectors are maintained at Winnipeg, Man., and Charlottetown, P.E.I. The following table shows the number of inspections made during the fiscal year 1921-22:—

Coast stations and land stations	35
Ship stations	1,285
Amateur stations	110
Total	1,430

The service undertakes the auditing rendering and collection of accounts for commercial ship to shore messages, commercial interstation messages and the commercial service between the United States, Canada, and foreign points and Bermuda via Barrington Passage, N.S., also the auditing rendering and collection of accounts to various operating companies and foreign administrations for radiotelegrams exchanged by foreign ships through Canadian coast stations and the auditing, rendering and collection of accounts to various domestic and foreign operating companies and foreign administrations for radiotelegrams exchanged by vessels of Canadian registry through foreign coast stations. The following table shows the amount of paid business involved:—

	Paid business between ships		Paid business betweeen stations	
	Messages	Words	Messages	Words
East coast	54,711	712,188	20,305	504,144
Great lakes	12,935	186,727	1,567	24,158
West coast	12,731	187,652	55,253	1,007,889
Totals	80,377	1,086,567	77,125	1,536,191

The Marconi contracts cover the operation of thirty Government-owned coast stations on the Great Lakes and East coast of Canada. The origiual contracts were entered into from time to time as the stations were built commencing in 1904, and in 1911 they were consolidated into one contract dated April 6, 1911, covering twenty-one Government and one Marconi station on the East coast. A supplementary contract, dated September 17, 1912, was afterwards entered into for the maintenance of eight Government stations on the Great Lakes.

Sixteen of the above stations are operated the year round, fourteen during the season of navigation only.

In 1919 the Board of Conciliation appointed to settle wage disputes between the Marconi Wireless Telegraph Company and its employees, awarded the employees an increase of practically one hundred per cent (100%). The board also recommended that Government subsidies be increased to meet the additional cost.

The contracts of 1911 and 1912 were amended by Order in Council of August 31, 1921, which provided that—

(1) All redundant stations be closed (estimated at 6).

(2) Subsidies in respect of the 24 stations remaining open be increased for a period of five years, commencing April 1, 1921, from an average of $2,081.33 per station to $5,500 per station.

(3) Government pay one-half regular rates on Government messages.

(4) At the expiration of 1926, existing contracts again become effective.

On July 1, 1922, the Radiotelegraph Service was transferred from the Department of Naval Service to the Department of Marine and Fisheries. During the three months ended June 30 owing to the developments of the radiotelephone and the inauguration of Radiotelegraph Broadcasting stations, the number of Amateur Experimental licenses showed a great increase. On June 30, 3,741 Amateur Experimental stations were licensed by the department, and total number of Stations of all descriptions operated under license of the Department was 4,152; 740 were Radiotelephone Broadcasting stations varying in range from purely local stations with a radius of ten miles to those with a radius of 250 miles. The wavelength band reserved for broadcasting stations is 400 to 450 metres and no other work is allowed on this band in Canada.

Up to June 30, 1922, 2,588 licenses for reception only were issued.

To meet the large demand for receiving licenses arrangements have been made with the Postmaster General whereby the postmasters in the larger towns and cities of the Dominion are now issuing receiving licenses. This arrangement has proved satisfactory.

AMATEURS' REGULATIONS

The Amateur Radio Transmitting stations continue to develop, 1,153 transmitting licenses having been issued to the end of June. The class of apparatus installed indicates that the amateurs are keeping up with all the latest developments, and it being considered desirable that the regulations in so far as amateurs are concerned should be revised and amended to cover the latest developments, a questionnaire was sent to all Amateur Associations and other interested persons and their views obtained on the points under discussion.

As a result of the above some amendments to the regulations have been drafted and will be placed in effect at an early date. Pending the above Amateur stations have been authorized to use a wavelength of 180 metres for spark and 200 metres for C.W., and the normal Experimental wavelength has been established as 275 metres, and Amateur Broadcasting license has also been established under which recognized Amateur Radio Associations and Clubs may broadcast on a wavelength of 250 metres.

The general policy of the department in regard to Amateurs is that it is felt that the regulations should be made as few and as flexible as possible and amateurs should be given every encouragement to regulate themselves rather than have the department do it.

FEES FOR EXAMINATIONS AND LICENSES

Effective June 30, 1922, the following new rates for examination and license fees were established:

1. *Fees for Licenses.*—The annual fees to be paid in respect of licenses issued by the Minister of the Naval Service for the installation and operation of radiotelegraph stations in the Dominion of Canada, or on board any ship registered in Canada, shall be as follows:—

1. Limited Coast station	$50 00
2. Public Commercial station	50 00
3. Private Commercial Broadcasting station	50 00
4. Private Commercial station	10 00
5. Experimental station	5 00
6. Amateur Broadcasting station	5 00
7. Amateur Experimental station	1 00
8. Private Receiving station	1 00
9. Technical or Training School station	5 00
10. Ship station	1 00

2. *Fees for Examinations.*—The fees to be paid in respect of examinations for "Certificate of Proficiency in Radiotelegraphy and Radiotelephony" shall be as follows, for each examination or re-examination:—

1. Extra First Class certificate	$5 00
2. First Class certificate	2 50
3. Second Class certificate	1 00
4. Third Class certificate	1 00
5. Experimental certificate	2 50
6. Amateur certificate	0 50
7. Emergency certificate, any class	5 00
8. Radiotelephone certificate	2 50

From April 1 to June 30, 69 examinations were held, including 17 re-examinations; 32 passed and 37 failed.

INSPECTION

In the three months period ended June 30, 1922, 52 Amateur stations and 487 Ship stations were inspected.

PERSONNEL

The personnel of the Radiotelegraph Service during the past year was as follows:—

GOVERNMENT SERVICE—		
Headquarters	26	
Coast stations	67	
Land stations	38	
Ship stations	7	
		138
COMMERCIAL—		
Headquarters	90	
Coast stations	101	
Land stations	50	
Ship stations	200	
		441
Total		579

The total number of stations in operation in the Dominion of Canada and of the ships registered therein on March 31, 1922, was as follows:—

COAST STATIONS—		
East coast	19	
West coast	9	
Hudson bay	1	
Great Lakes	8	
		37
GOVERNMENT LAND STATIONS		1
DIRECTION FINDING STATIONS—		
North Atlantic		4
LICENSED COMMERCIAL STATIONS—		
Public commercial	6	
Private commercial	20	
		26
LICENSED EXPERIMENTAL STATIONS—		
Province of Ontario	17	
Province of Quebec	7	
Province of Prince Edward Island	1	
Province of Nova Scotia	3	
Province of Alberta	1	
Province of British Columbia	5	
Province of New Brunswick	1	
		35

LICENSED TRAINING SCHOOLS—		
Province of Ontario	7	
Province of Quebec	7	
Province of Prince Edward Island	2	
Province of Nova Scotia	1	
Province of British Columbia	5	
Province of Saskatchewan	1	
Province of Manitoba	2	
		25
AMATEUR RADIOTELEGRAPH STATIONS—		
Province of Ontario—		
Toronto	213	
Other localities	422	
		635
Province of Quebec—		
Montreal	138	
Other localities	59	
		197
Province of New Brunswick—		
St. John	17	
Other localities	3	
		20
Province of Nova Scotia—		
Halifax	8	
Othere localities	37	
		45
Province of Prince Edward Island		17
Province of Manitoba—		
Winnipeg	61	
Other localities	10	
		71
Province of Saskatchewan		42
Province of Alberta		24
Province of British Columbia—		
Vancouver	88	
Victoria	45	
Other localities	39	
		172
Yukon and Northwest Territories		3
Number of Amateur stations in Canada		1,226
LICENSED SHIP STATIONS—		
Province of Ontario	62	
Province of Quebec	107	
Province of New Brunswick	2	
Province of Nova Scotia	6	
Province of Prince Edward Island	1	
Province of British Columbia	49	
Total		227

The following Government steamers are equipped with radiotelegraph installations operated by the Department of the Naval Service:—

Name	Range	Call Signal
Acadia	200 miles	VDT
Arleux	150 "	CFL
Armentieres	150 "	CFM
Arras	150 "	CFO
Givenchy	150 "	CFN
Gubnare	150 "	VBZ
Malaspina	200 "	VDU
Stadacona	200 "	VBU
Submarine H.14	.....	GCLK
Submarine H.15	.....	GCBE
Thiepval	150 miles	CFP

OPERATED BY THE DEPARTMENT OF MARINE AND FISHERIES

Name	Range	Call Signal
C.G.S. *Laurentian*	150 miles	CFC
" *Stanley*	150 "	VDE
" *Lady Laurier*	150 "	VDF
" *Aberdeen*	100 "	VDG
" *Druid*	100 "	VDH
" *Montcalm*	150 "	VDJ
" *Lady Grey*	100 "	VDL
" *Estevan*	200 "	VDN
" *Dollard*	150 "	VDO
" *Newington*	100 "	VDP
" *Lurcher Lightship*	100 "	VDR
" *Aranmore*	200 "	VDQ
" *Bellechasse*	100 "	VDS

OPERATED BY THE DEPARTMENT OF RAILWAYS AND CANALS

Sheba	200 miles	VDZ
Thomas J. Drummond	200 "	CHY
J. A. McKee	200 "	CHX

OPERATED BY THE CUSTOMS DEPARTMENT

Margaret	200 miles	VDW
Restless	150 "	VGJF

OPERATED BY THE PUBLIC WORKS DEPARTMENT

Tyrian	150 miles	VDK

LICENSED LIMITED COAST STATIONS

The total number of stations in operation in Canada on March 31, 1922, was 1,612.

OPERATION OF THE COAST STATION SERVICES

The total number of messages and words handled during the year were as follows:—

	Messages	Words
East Coast	155,839	2,758,297
Great Lakes	22,692	347,223
West Coast	148,561	2,339,500
Hudson Bay	Nil	Nil
	327,092	5,445,020

The amount of business handled by the East Coast system shows a decrease from last year's business amounting to 49,574 messages, containing 1,008,566 words.

The Great Lakes system (operated by the Marconi Wireless Telegraph Company of Canada under contract) shows a decrease of 1,647 messages with a decrease of 51,011 words.

The West Coast system (operated directly by this Department) shows a decrease of 36,630 messages containing a decrease of 729,616 words.

The Hudson Bay system was not in operation during the year.

Table No. 1 shows a comparative statement of the business handled by the different systems during the past twelve years.

TABLE No. 1.—COMPARATIVE STATEMENT OF BUSINESS HANDLED BY THE RADIO TELEGRAPH SYSTEMS DURING THE PAST TWELVE YEARS

Service	1910–11		1911–12		1912–13	
	Messages	Words	Messages	Words	Messages	Words
East Coast	71,594	1,179,434	119,049	1,824,450	153,843	2,704,411
Great Lakes	Nil	...	1,043	17,095	2,750	52,422
West Coast	48,074	647,461	76,158	997,900	115,494	1,518,926
Hudson Bay	...	...	...	...	...	...
	119,668	1,826,895	196,250	2,839,445	272,087	4,275,759
	1913–14		1914–15		1915–16	
East Coast	145,605	2,443,145	59,846	1,196,512	45,195	864,020
Great Lakes	9,601	219,786	15,785	326,505	13,617	259,366
West Coast,	157,354	2,206,331	98,386	1,532,526	95,648	1,103,395
Hudson Bay	...	...	5,259	325,961	7,617	570,281
	312,560	4,869,262	179,276	3,381,504	161,477	2,797,062
	1916–17		1917–18		1918–19	
East Coast	37,835	704,469	36,771	820,230	70,179	1,565,698
Great Lakes	16,521	311,800	16,809	307,729	19,130	402,937
West Coast	121,120	1,732,420	147,885	2,308,261	187,668	3,624,100
Hudson Bay	6,264	392,154	5,934	430,080	3,004	212,036
	181,740	3,140,843	207,399	3,866,300	279,981	5,805,771
	1919–20		1920–21		1921–22	
East Coast	147,208	2,860,821	205,413	3,766,863	155,839	2,758,297
Great Lakes	20,157	370,021	24,339	398,234	22,692	347,223
West Coast	173,968	2,898,148	185,191	3,069,116	148,561	2,339,500
*Hudson Bay	Nil	Nil	Nil	Nil	Nil	Nil
	341,333	6,128,990	414,943	7,234,213		

Comparison with 1920–21 Decrease	
Messages	Words
49,574	1,008,566
1,647	51,011
36,630	729,616
Nil	Nil

*The Port Nelson and Le Pas stations were not in operation during the past year.

REVENUE FROM TRAFFIC

The total amount of revenue collected during the year amounted to $54,161.76, as against $64,978.61 in 1920-21.

The West Coast service shows a decrease of $13,404.51, the Great Lakes an increase of $0.08, and the East Coast an increase of $2,587.58.

Table No. 2 shows a comparative statement of the revenue collected by the Coast Station services during the past thirteen years:—

TABLE No. 2

	1909-10	1910-11	1911-12	1912-13	1913-14
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
East Coast	Nil	Nil	229 57	475 00	318 42
Great Lakes	Nil	Nil	Nil	17 08	27 55
West Coast	Nil	3,108 63	4,484 77	9,928 40	15,992 70
Totals	Nil	3,108 63	4,714 34	10,420 48	16,338 67
	1914-15	1915-16	1916-17	1917-18	
	$ cts.	$ cts.	$ cts.	$ cts.	
East Coast	322 99	1,022 33	987 67	981 90	
Great Lakes	85 92	78 16	107 90	103 20	
West Coast	11,329 44	7,394 60	15,635 76	21,333 18	
Totals	11,738 35	8,494 99	16,731 33	22,418 28	
	1918-19	1919-20	1920-21	1921-22	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
East Coast	1,584 02	1,402 48	14,343 70	16,931 28	
Great Lakes	70 66	113 18	164 47	164 55	
West Coast	42,634 09	49,949 02	50,470 44	37,065 93	
Totals	44,288 77	51,464 68	64,978 61	54,161 76	

EXAMINATION FOR CERTIFICATE OF PROFICIENCY IN RADIOTELEGRAPHY

Three hundred and twenty-nine operators were examined during the year including 158 re-examinations; 134 candidates were successful and 195 failed.

ASSISTANCE RENDERED TO SHIPS DURING THE YEAR BY GOVERNMENT RADIOTELEGRAPH SERVICE

West Coast

SS. West Hartland and Governor.—On April 1, 1921, the Gonzales Hill station received a distress message from the ss. *West Hartland,* when this vessel rammed the ss. *Governor* off Point Wilson in Puget sound. Distress call and particulars immediately relayed to Seattle (NV.L.). Distress message from *Governor* "in collision, sinking fast, rush help," broadcasted and particulars given to ss. *Adelaide* who altered course for Point Wilson. The *West Hartland* advised later that *Governor* sank and that the *Adelaide's* assistance not required as this vessel was looking after survivors.

SS. Tokuyo Maru.—On May 2, 1921, the Triangle Island station received a distress message from the ss. *Tokuyo Maru* advising vessel on fire and sinking fast. As Triangle could raise no ships in vicinity information was given to the Estevan and Gonzales Hill stations, who broadcasted particulars. The information sent out by Estevan was picked up by the United States coastguard steamer *Snohomisl,* who with the United States army transport *Buford* went to the assistance of the *Tokuyo Maru.* The *Buford* picked up all but four or five of passengers and crew.

SS. Chelohsin.—On August 12, 1921, the Bull Harbour station received a distress message from the ss. *Chelohsin* advising touched rock off Table island. Later reported leak in forehold but pumps able cope with it.

SS. Princess Ena.—On August 14, 1921, the Bull Harbour station received a distress message from the ss. *Princess Ena* advising ashore Cormorant island.

SS. Canadian Importer.—The ss. *Canadian Importer* sprung a leak somewhere off the Pacific coast and was missing for a long period. No distress signals were heard. The W/T equipment was rendered useless due to the engines being flooded and ship's dynamo under water. On August 25, 1921, the Gonzales Hill station was advised by the United States station at North Head to request all ships to look out for a whale boat belonging to the ss. *Canadian Importer*. This information was telephoned to the Victoria "Colonist" immediately. The *Importer* was eventually located and towed into Victoria, B.C.

Givenchy.—On September 3, 1921, the ss. *Givenchy* reported to the Bull Harbour station as being on a rock in Raven cove, Chatfield island, not making water, crew ashore. The steamers *Camosun, Princess Alice* and *Venture* were requested to look out for the *Givenchy* when passing. The crew were taken on board the *Princess Alice*.

Bark Tolmie.—On December 1, 1921, the Gonzales Hill station received advice from the United States Coast station at Seattle that the bark *Tolmie* was disabled three miles from Neah bay, steering gear broken. The Canadian National Railway was immediately advised by telephone, with result that salvage steamer *Algerine* was despatched to pick up disabled vessel and tow to Esquimalt. The *Tolmie* was not equipped with wireless.

SS. San Antonio.—On December 2, 1921, the ss. *San Antonio* sent a message through the Point Grey station to the Kingsley Navigation Company, advising ashore at Roche point and requesting assistance of tug. Vessel finally floated on December 3.

SS. Canadian Rover.—On December 5, 1921, the Cape Lazo station received a distress message from the ss. *Canadian Rover* advising struck Sand bottom off Campbell river. Assistance was offered by United States revenue cutter *Snohomish* but declined. The *Rover* floated on December 6 and proceeded north.

Air Board Seaplane.—On December 13 the Point Grey station received advice by telephone from the Air station that word had been received via a pigeon carrier that their seaplane was in difficulties near the lightship off Fraser river. The plane had made a landing but was unable to rise owing to heavy sea and needed assistance. A broadcast message was sent out asking any vessel in vicinity to render assistance. The ss. *Lewis Luckenback* passing abeam of Point Grey advised would proceed in direction of lightship. The *Luckenback* after reaching a point three-quarters of a mile west of lightship stated could see nothing of sea plane. The Air station advised later that tugs were alongside the plane and no further assistance necessary. This information was broadcasted and thanks expressed to the master of the *Luckenback* for trouble taken.

C.P.R. Transfer Barge No. 8.—On December 18, 1921, the Gonzales Hill station received advice from the American steamer *San Antonio* that the Canadian Pacific Railway transfer barge *No. 8* was ashore south of Portier Pass (between Nanaimo and Vancouver). The marine superintendent of the B.C.C.S. was advised by telephone. The *Algerine* was dispatched to assistance and succeeded in floating the barge. The *Transfer Barge* was not equipped with wireless.

SS. Canadian Observer.—On January 12, 1922, the Cape Lazo station received a message from the ss. *Canadian Observer* addressed to the vessel's Vancouver agent, advising ashore and bottom in Deep bay, Discovery passage. Cape Lazo stood by until *Observer* floated.

Shipping generally.—An arrangement has been made with the Point Grey and Gonzales Hill for ships to report positions to those stations. Ships off Prospect point (one hour from Vancouver) report to Point Grey, Point Grey advises the Merchants exchange, Vancouver, they in turn advise interested parties; after 5 p.m. the Harbour master is advised. Ships leaving outer docks, Victoria or Quarantine, report the time to Gonzales Hill, that station advises Point Grey for further distribution. The above procedure has been of considerable value to the shipping fraternity and has been the subject of congratulation to the department.

East Coast and Great Lakes

SS. Mullen.—On April 14, 1921, the Sault Ste Marie station established communication with the ss. *Mullen* ashore on Whitefish point. A tug and lighter were sent out from Sault Ste Marie.

SS. John Reiss.—On May 15, 1921, the Point Edward station was in communication with ss. *John Reiss* ashore on east side of entrance to St. Clair river, in fog. Communication maintained.

SS. Zillah.—On May 14, 1921, the Sault Ste Marie station received a report from the ss. *Zillah* advising two barges lost in vicinity Whitefish point; all vessels in vicinity were fully advised. Steamer *Renown* advised Sault Ste Marie of wreckage observed consisting of spar and cabin with one man clinging thereto, location three miles north of Whitefish point. *Renown* rounded to but before getting alongside man washed off.

SS. Beaverton.—On August 15, 1921, the Toronto station reported the ss. *Beaverton* ashore Sister light, below Alexandria bay, bottom torn in forward tank and fore peak. Lighters and pumps sent for.

SS. Sarnian.—On August 29, 1921, the Toronto station reported the ss. *Sarnian* aground on Espanole island. Vessel refloated on August 31.

SS. Lewiston.—On September 26, 1921, the Sault Ste Marie station was advised by the ss. *J. L. Reiss* that the ss. *Lewiston* was aground below Little Rapid cut. A tug was sent to the assistance of this vessel.

SS. Anna C. Minch.—On October 18, 1921, the Sault Ste Marie station reported the ss. *Anna C. Minch* ashore on bar, north east end Bois Blanc. Tugs and lighters sent to assistance from St. Ignace and Sault Ste Marie. The *Minch* was refloated on October 19, leaking slightly.

SS. Home Smith.—On November 17, 1921, the Point Edward station reported the ss. *Home Smith* aground in the middle of lake St. Clair, no damage. Vessel refloated on November 18.

SS. Karl Bradley.—On November 19, 1921, the Point Edward station received a report from the ss. *Karl Bradley* advising has struck submerged obstruction in the down-bound channel of lake St. Clair, about 1,000 feet from south west end. The ss. *Stack* was notified.

SS. Riverton.—On November 28, 1921, the Point Edward station received a report from the ss. *Riverton* concerning an obstruction mostly submerged half mile above Lake Huron lightship, almost on the ranges.

SS. Phillip Minch.—On December 1, 1921, the Sault Ste Marie station received a report from the ss. *Phillip Minch* ashore about eight miles east of Detour in the vicinity of the Estanore island. Tug *Favourite* standing by. Vessel reloaded cargo at Detour on December 5.

SS. Impoco.—On April 5, 1921, the Cape Sable Island was in communication with the ss. *Impoco* ashore on Blond rock.

SS. Lord Antrim.—On July 3, 1921, the North Sydney Station reported the ss. *Lord Antrim* ashore in Bay St. Lawrence, no damage feared. Vessel refloated on 4th and proceeded North Sydney.

SS. Chattanooga.—On July 3, 1921, the Cape Race station received a report from ss. *Chattanooga* advising boilers disabled position 42.25 N. 43.46 W.

SS. Seirstad.—On July 20, 1921, the Cape Race station reported the ss. *Seirstad* struck iceberg 48.57 N. 49.00 W. Bow damaged above water but vessel not leaking.

SS. Canadian Recruit and SS. Maskinongé.—On August 18, 1921, the Grosse Isle reported the steamers *Maskinongé* and *Canadian Recruit* in collision, heavy fog and advised all vessels in vicinity that later vessel in sinking condition. On the 19th August the ss. *Corinaldo* notified Grosse Isle all vessels in vicinity that a vessel had sunk off South bank abreast channel patch and was a danger to navigation.

SS. City of Brunswick.—On August 26, 1921, the Camperdown station received a distress message from the ss. *City of Brunswick* advising struck "The Sisters" near Sambro. Tugs were sent from Halifax to the assistance of this vessel.

SS. Karenrogeheas.—On October 1, 1921, the Point Riche station reported the ss. *Karenrogeheas* grounded on Ferolle point in a dangerous position and making water. Ships sent to her assistance. Later vessel reported half full of water. Point Riche unable to raise her by W/T steamer *Linden Hall* turned back from proceeding to assistance. On October 2 ss. *Orthia* reported had passed Ferolle point at 6 p.m. October 1, but no sign of *Karenrogeheas.*

SS. San Francisco.—On November 13, 1921, the Cape Race station received a distress message from the ss. *San Francisco* advising on fire but no immediate danger, ss. *Ramon de Larrinaga* standing by.

SS. Tonesit.—On December 9 the ss. *Tonesit* reported to the Cape Race station, reduction gear broken assistance asked for. Vessel drifting eastward in a westerly gale.

DIRECTION FINDING STATIONS—EAST COAST

The Direction Finding Stations continue to render valuable assistance to navigators. The following is a summary of bearings given to ships by the four stations on the East coast during the fiscal year ending March 31, 1922.

Station	Single Bearings	Cross Bearings		Total
		Two Stations	Three Stations	
Chebucto Head	958	646	6	1,610
Cnnso	773	445	53	1,271
Cape Race	2,800	169	21	2,990
St. John	588	0	2	590
Totals	5,119	1,260	82	6,461

Above figures compiled from returns sent in monthly to Headquarters.

ASSISTANCE RENDERED TO SHIPS DURING THE YEAR BY GOVERNMENT DIRECTION FINDING STATIONS

SS. Ozette.—On June 20, 1921, the Chebucto Head D F station received a report from the U.S.C.G.S. *Seneca* that the ss. *Ozette* with boiler break down requires tow to Halifax. Bearing from Chebucto 180 degrees. Navy advised. Tug *Musquash* went to assistance and towed the *Ozette* to Halifax.

SS. Western Hero.—On December 13, 1921, the Cape Race station reported the ss. *Western Hero* in distress short of fuel; assistance required.

SS. Mod.—On January 21, 1922, the Cape Race station reported the ss. *Mod* sinking ss. *George Washington* proceeding to assistance. On January 22 the Cape Race reported ss. *Mod* sank; 25 survivors out of crew totalling 33 rescued and on board *Melmore Head*. All ships in vicinity searching for missing boat.

SS. Grontoft.—On March 2, 1922, the Cape Race station reported the ss. *Grontoft* sinking, ss. *Estonia* proceeding to her assistance.

SS. City of Brunswick.—On August 26, 1921, the Chebucto Head D F station intercepted messages from the ss. *City of Brunswick* asking for assistance, ship on rocks. Bearing 183½ degrees given to ship and navyard advised by landline. Bearing given later places ship in line with Sisters rock near Sambro island. *City of Brunswick* pounding badly requests tugs. Tugs from Halifax and life-boat from Duncan's Cove proceeded to assistance, crew taken off. Attempt to float vessel unsuccessful; ship total wreck.

SS. Baleine.—On September 30, 1921, the Chebucto Head D F station received advice from the Canso D F station that the ss. *Baleine* struck Cape Hog, water gaining rapidly, proceeding Sand Point beach ship Navyard advised. Vessel abandoned when off Sand point.

SS. Royal.—On October 13, 1921, Cape Race reported the ss. *Royal* ashore at Chance cove, near Cape Race. Bearing from Cape Race 222 degrees being the reciprocal of the actural bearing, Navyard advised.

SS. Gilda.—On December 12, 1921, the Chebucto Head D F station received a distress message from the ss. *Gilda* broken down in latitude 39.30, longitude 49.10 west requires assistance. Navyard advised.

SS. New England.—On December 22, 1921, the Chebucto Head D F station broadcasted the following message: "All vessels vicinity of Halifax and Cape Sable, ss. *New England* at 0630 GMT; bearing 107½ degrees distance about 30 miles off Chebucto Head drifting and without fuel oil N.W. gale, request immediate assistance." In connection with the rescue of this vessel Chebucto assisted the C.G.S. *Lady Laurier* to make harbour in a very thick snow storm by numerous D F bearings.

SS. Storm King.—On December 26, 1921, the Chebucto Head station received a report from the ss. *Storm King* advising disabled. Ss. *Balsam* going to assistance. Bearing from Chebucto 159½ degrees from Canso 193 approximately. Navyard advised. Bearings given to both vessels.

SS. Holtby.—On May 18, 1921, the Canso D F station intercepted a call sent out by the ss. *Holtby* asking for name of steamer which has collided with her. Steamer afterwards found to be ss. *Lady of Gaspé*. Bearing of *Holtby* from Canso 88 degrees. Canso gave several bearings to *Holtby* subsequently and advised Navyard by landline.

SS. Baleine.—On September 30, 1921, the Canso D/F station received a distress message from the trawler *Baleine* advising struck cape Hogan, straits of Canso, proceeding towards Sand point to beach ship, making water fast. Advise broadcasted on 600 and 800 metres and bearing given to ship on request. When subsequently beached a short distance from cape Argos bearing 306 degrees true. Advised Navyard by landline.

SS. Thyra.—On February 5, 1922, the Canso D/F station received a message from the Norwegian steamer *Thyra* via Sable island asking for bearing on 600 metres, ship not being fitted for 800 metres. Ship in distress, rudderless, endeavouring make Halifax. Bearing given to *Thyra* 158½ degrees from Canso. Co-operated with Chebucto Head in cross bearing. Canso gave three bearings to C.G.S. *Lady Laurier* who proceeded to assistance. Canso gave subsequent cross bearings to *Lady Laurier* while towing *Thyra* to Halifax.

SS. Seapool.—On June 8, 1921, Cape Race D/F station received advice from ss. *Seapool* struck iceberg latitude 47·50 N. longitude 48·30 W. Bearing given with difficulty. This vessel made port of St. Johns, Newfoundland.

SS. Charlot.—On June 9, 1921, the Cape Race D/F station received report from ss. *Charlot* advising struck iceberg, position latitude 51 N., longitude 48·30 W. After several bearings given *Charlot* corrected position to 49·31 N., 50·30 W. Other bearings given. Ship made port of St. Johns, Newfoundland.

New Construction, Additions and Alterations

WEST COAST

Dead Tree Point.—The mast was overhauled.

Point Grey.—The masts were overhauled, painted and repairs made to verandah of operating house. An addition to the operating house was made to accommodate toilet and washbasin. A septic tank was built and all sanitary arrangements connected to same. The buildings were painted and grounds cleared of undergrowth.

Cape Lazo.—The three stick mast was taken down, aerial readjusted, battery room built in engine room and small repairs made to dwelling-house.

Gonzales Hill.—A new receiving aerial was put up in connection with the "Break system." A wave-changing switch and tungar rectifier for charging filament batteries were installed.

Alert Bay.—The masts were overhauled and painted and guys reinsulated, air equipment overhauled, auxiliary 2 K.W. set installed to run off 10 horse-power engine, track overhauled

Digby Island.—The operating house and masts were painted and guys and receiving equipment overhauled. A seven-step amplifier and charging equipment were installed. A power line to connect with power cables was built. During February, 1922, tests were conducted with a vessel operating in the Portland canal in order to obtain information with regard to the possibility of a station being erected at Stewart, B.C. Tests were carried out for the purpose of establishing direct working with Point Grey.

Triangle Island.—This station was closed in June, 1921, and substituted by the Bull Harbour station. As the latter station immediately continued the work of Triangle there was no delay due to change.

Bull Harbour.—The new station at Bull Harbour was placed in commission on June 25, 1921. The completed establishment consists of a large operating house, two standard bungalows for the accommodation of married members of staff and single operators. All buildings have been equipped with plumbing and sanitary conveniences, water being supplied under pressure from an elevated tank of 1,000 gallons capacity which is filled by a gasoline engine driven pump taking its supply from a well on the site. The station is equipped with a 2 K.W. transmitter driven from 6-horse power engine. The receiving equipment consists of up-to-date apparatus, including valve amplifier, etc., together with necessary generating equipment for charging receiver storage batteries. An efficient listening-through system has been installed. Very satisfactory communication has been established between Bull Harbour and ships passing through the whole length of Johnston strait and Discovery passage and also between Bull Harbour and Vancouver, Prince Rupert, Estevan, Alert Bay, and all the private commercial stations in this region. Provision has been made in the operating house building to accommodate a large storage battery from which the station may be more efficiently operated when traffic warrants its installation.

Estevan Point.—The new construction work was practically completed. This work included clearing of heavy timber from site, repairs to light railway track, improvement of haulage facilities from landing, erection of a new power house and installation therein of a 50 horse-power engine driven generating set and 1,600 ampere hour 120 volt storage battery, installation of a more powerful transmitter in operating house, rearrangement of old transmitter, erection of new transmitting aerials and erection of new receiving aerials to minimize interference. Establishment of efficient listening through system. Erection of one new bungalow for married quarters. Installation of general drainage system and sanitary conveniences. Operation of station on storage battery was commenced on March 27, 1922, with excellent results.

Lulu Island.—Tests covering a period of two weeks were made the results of which were eminently satisfactory. This temporary station was closed on October 25, 1921.

General.—During the month of January, 1922, reception tests were arranged and conducted from a vessel transmitting in Seymour narrows, records of the tests being submitted by all the stations within range.

EAST COAST

Barrington Passage, N.S.—The towers were scraped and repainted and a thorough overhaul given to all outside gear. Further work on the inside of the Army Barracks was done to give increased accommodation to married operators.

St. John, N.B. D/F.—On July 1, 1921, the Partridge Island station was closed down and the St. John D/F station took over the whole of its commercial work.

The arrangements whereby a ship calls the D/F station on the standard wavelength of 600 metres for its commercial work and resorts to 800 metres for D/F work has proved entirely satisfactory. An electric supply service from the city of St. John to the station at Red Head has been completed. Suitable W/T power apparatus and auxiliary manipulating gear for quick change of wavelengths were installed. Improvements were made in fencing, sewage, plumbing and electric water pressure system. A separate receiver with valve detector and amplifiers were installed for commercial work only eliminating undue wear on D/F instruments. A type 55 F amplifier with saturation device was fitted to the D/F receiver which obtained increased receiving range and decided minima of tuning resulting in increase of accuracy of bearings given. The station was recalibrated for deviation error and slight changes in the correction factors where necessary were made.

Chebucto Head, N.S., D/F, Canso, N. S., D/F, Cape Race, Nfld., D/F.—Type 55 F amplifiers with saturation devices were fitted to each D/F receiver which obtained increased receiving range and decided minima of tuning resulting in increase of accuracy of bearings given. The stations were recalibrated for deviation error and slight changes in the correction factors where necessary were made.

Montreal, P.Q.—The location of the station at Tarte Pier, Montreal, had long been considered an unfavourable one from a receiving point of view. Induction from the high tension power lines in the vicinity had become so intense that in 1914 it was decided to remove to a new site. Accordingly land was purchased for this purpose in St. Michel de Laval. Owing to pressure of other work during the war the removal to the new site was not carried out. Work however was started on August 1, 1921, on the erection of a new operating house on the new site. A three piece mast with umbrella type aerial was also erected. The old station was officially closed and the new one placed in commission on October 10, 1921.

GREAT LAKES

Port Burwell, Ont.—For a number of years erosion of some few miles of the lake Erie shore in the vicinity of the Port Burwell station had progressed to such an extent as to imperil the safety of the station. In February, 1921, it was decided to move the buildings and masts to a new location about 700 feet further inland and a site of three acres was expropriated at this point. Only one mast was re-erected at the new site using the umbrella type of aerial. The station was recommissioned on May 4, 1921.

6. STORES BRANCH

Under the original organization, the Stores Branch at Headquarters was divided into three divisions, namely, the Purchasing and Contract Division, the Stores Division, and the Stationery and Printing Division. There were also the Stores Depots at H.M.C. Dockyards, Halifax, N.S., and Esquimalt, B.C. Shortly after the outbreak of the war, the Transportation Division was organized, owing to the necessity of utilizing all available tonnage for overseas shipment. To cope with the traffic, the department undertook to supply empty Admiralty colliers with the cargoes for European ports. A very thorough organization was evolved in conjunction with Mr. A. H. Harris, Acting Director Overseas Transport, whereby thousands of tons of material daily from all parts of Canada were shipped to allied nations. The Transportation Division has since been discontinued. During the past year the Naval Armament Supply Division has been organized at Headquarters, as well as Armament Supply Depots at each Dockyard. During the war also, owing to the inauguration of an anti-submarine campaign on the Atlantic coast towards the end of the year 1917, which involved the commissioning of a large number of patrol vessels, trawlers, drifters and other craft, Auxiliary Supply Depots at different points were organized to take care of the peculiar requirements of these small craft. On the cessation of hostilities, these depots and services were discontinued.

PURCHASING AND CONTRACT DIVISION

The work of this division has to do with the execution and supervision of all contracts and purchases, including also the chartering of vessels, the making of contracts for the erection of buildings and other permanent structures, for water supplies, electric light and power, telephone services, etc., for the victualling of

ships' crews where the victualling is not done by the department, the purchase, by contract or otherwise, of all necessary stores and supplies of every description, and the sale of stores and ships surplus to the requirements of the department.

In addition to the Naval Service proper, the following services are served in this way: Hydrographic Surveys, Tidal and Current Surveys, Radiotelegraph Service, and the Fisheries Protection Service. From 1914 to 1920, similar service was also rendered to the Life Saving Service, Fishery Patrol Service, Fish Breeding Service, as well as other fishery Services throughout the Dominion.

To the utmost extent possible, all Services attached to the Department utilize the storekeeping facilities available at the Dockyards at Halifax and Esquimalt, drawing supplies from these points. Therefore, the main duty of this division is the procuring of supplies to replenish stocks carried at the Dockyards. Annual forecasts of requirements are prepared by each Dockyard at the commencement of the year, in which provision is made for the requirements of the ensuing year. Unforseen requirements arising during the course of the year are requisitioned from time to time as necessary.

Supplies purchased include a very wide range under the following six general categories:—

(*a*) Provisions;
(*b*) Clothing and Clothing Materials;
(*c*) Medical Supplies;
(*d*) Naval Stores, including lumber, metal and hardware, tools, textile and cordage, packings and rubber goods, paints and oils, leather goods, glass furnishings, brushes, etc., electrical supplies, wireless equipment and fuel;
(*e*) Armament Stores, including ordnance, ammunition and torpedo stores, and
(*f*) Stationery and Printing.

Considerable purchases have also been made on behalf of the Imperial Government and to a lesser extent on behalf of other Governments. During the war especially, very large quantities of provisions and other staple commodities were purchased for shipment to England and to H.M. Victualling Yards abroad.

In effecting purchases from Headquarters, tenders are called for in practically every instance. All known manufacturers, wholesale establishments and other dealers are invited to tender, thus affording the trade the fullest opportunity to secure the business and at the same time, obtaining supplies to the best possible advantage. Although the bulk of requirements are purchased direct from Headquarters at Ottawa, a considerable portion of the purchases are effected locally. In all instances the same procedure governs and the whole is supervised by Headquarters. Detailed specifications form an integral part of the purchasing system and are used for the great majority of items purchased. These specifications, while based essentially on Imperial naval experience, have nevertheless been revised as far as possible to meet conditions obtaining in the Canadian trade. This work of revision is always on hand and good progress has been made during the past year.

Contracts are maintained on both coasts for supplies of fresh provisions, coal, ice, etc., for the convenience of ships operating in adjacent waters. These are made applicable to, and are taken advantage of, by the ships of the Imperial, as well as during the war by ships of Allied Governments.

During the year the total value of all purchases made amounted to $1,050,309.92. The following is a summary thereof under the different classifications enumerated:—

Provisions	$203,622 09
Clothing	13,057 00
Medical Stores	944 00
Coal and Oil Fuel	474,391 84
Naval and Miscellaneous Stores	200,813 24
Armament Stores	36,061 00
Stationery and Printing	121,420 75

Efforts to effect sale of the remaining vessels in the possession of the department as well as Admiralty vessels remaining on our hands were continued during the year. As a result the department succeeded in disposing of the *Vigilant* and drifter *No. 6*. Negotiations also were carried on which finally resulted in the resale of the *Niobe* and the *Shearwater*. The activities of the branch in connection with the sale of surplus vessels and craft are of considerable interest. During the latter months of the war the department had in commission approximately 200 ships and vessels of various sorts. Of these 60 trawlers and 86 drifters belonged to the Admiralty who requested that they be offered for sale. Endeavours in this direction resulted in the sale of 14 trawlers and 36 drifters, the remainder being taken to Great Britain for sale in that country. The sum realized from these sales amounted to $928,120 in the case of the trawlers and $333,466 in the case of the drifters. In addition, 30 vessels owned by the department, including the cruisers *Niobe* and *Rainbow* and the submarines *C.C.I. C.C. 2* were disposed of, the sum realized being $640,439. Eighteen motor-boats and other small craft were also disposed of, the amount realized being $11,276.

During the war large reserves of supplies of every kind were maintained to meet the requirements of our own vessels. In addition, in November, 1917, the Admiralty issued instructions that armed merchant cruisers calling at Canadian and American ports should obtain all of their supplies of provisions at such ports, and furthermore that they should demand quantities in excess of their requirements for landing in England, and asked the department to co-operate with them in this regard by making available the supplies required. Immediately following the cessation of hostilities the demand for these supplies ceased abruptly and this, together with the demobilization of the Canadian fleet, left the department with large surpluses for which there was no outlet. Immediate action was taken for the disposal of surplus stores by inviting tenders by public advertisement, and also by arranging with other Government departments to utilize these surpluses to meet their requirements. Notwithstanding the fact that commercial conditions were decidedly unfavourable for the sale of these stores, and that the market in practically all commodities was a declining one, the department succeeded in effecting disposal of stores aggregating in value $777,385.64. The stores sold included staple provisions, clothing and materials, cordage, lumber, wire rope, packings, etc.

STORES DIVISION AND SUPPLY DEPOTS AT THE DOCKYARDS

The functions of the Stores Division are the supervision and control of all matters pertaining to the provision, receipt, care, repair, issue, accounting and audit of all stores, other than armament stores, for all ships and establishments, including the victualling of ships where the victualling is done by the department. Though organized primarily for the purpose of supplying all men-of-war and other naval establishments with all stores and other necessary equipment, the branch has always extended equal facilities to vessels of the Fisheries Protection Service and of the Hydrographic Survey, to the Radiotelegraph Service and the Tidal and Current Surveys. From 1914 to 1920, service was also rendered to the Life Saving Service, to vessels of the Fisheries Patrol Service and to fish hatcheries and other fisheries establishments throughout the Dominion. Considerable difficulty was experienced in the supplying of these services, owing to the disparity between the services themselves and the nature of the requirements. The policy of standardizing their requirements as far as possible was adopted with the result that considerable progress was made in this direction with gratifying results.

The principal aim of the branch whether in time of war or in peace time, is, however, to supply and equip men-of-war with every possible expedition and to render the maximum assistance possible for their efficient maintenance. This having been the main and all important function during the war, ships of the British Admiralty and of Allied Governments, as well as of the Canadian Naval Service, received first considera-

tion. It is gratifying to report that the extension of facilities afforded the Imperial Service and the value of supplies issued to their ships and establishments brought about a closer relationship between the department and the British Admiralty. During the war the scope of this work was greatly extended since in addition to vessels of the Canadian Naval Service and auxiliary services, the number of which was largely increased, stores were supplied in large quantities to vessels of the Imperial Service and of Allied Governments. Immediately following the war and upon the demobilization of the naval forces, the branch was reduced to a peace basis.

During the year, supplies of stores were arranged for the vessels of the squadron, H.M.C. ships *Aurora*, *Patriot* and *Patrician* and the submarines *C.H. 14* and *C.H. 15*. The greatest possible economy was exercised in this by the transfer of stores between dockyards, where necessary, and by shipment to the West Indies when the ships were located in those waters. Besides these vessels, service has been rendered at Halifax to 56 and at Esquimalt to 29 ships and establishments, including small craft. Service was also rendered to 84 ships and establishments not connected with the department and including ships of the Imperial Service. Supply depots are maintained at both Halifax and Esquimalt Dockyards. These are in charge of experienced store officers who supervise the work and who are responsible to Headquarters for the performance of the duties allotted to them. It is their duty to be prepared at all times to provide and issue supplies of whatever nature required to all ships and establishments under the jurisdiction of the department and to such others as may be approved by Headquarters, to make a strict and careful accounting of all such issues; and to see that all supplies purchased are in accordance with specifications and in other respects suitable for the Service. The variety of stores handled is necessarily very wide and includes staple provisions; uniforms and clothing of all kinds and clothing materials; medical supplies, surgical instruments and hospital equipment, lumber of all kinds; metal of all kinds and in every state of manufacture; hardware and tools; textiles and cordage; packings and rubber goods, paints, oils, glass, leather goods, brushes, furniture and furnishings, tackle, navigating instruments; charts and other miscellaneous supplies of every nature; electrical stores of a very wide range; and coal and oil fuel. In the inspection and selection of this wide range of stores expert knowledge and wide experience are essential. For ships of war particularly, excellence of quality and reliability are of most vital importance. To this end standardization of supplies and a rigid system of inspection constitute two important factors of the supplies organization.

The nature of the Service demands that substantial reserves must be maintained at each naval base and kept readily available at all times. In times of peace ships' requirements can be forecasted very accurately, their allowances being carefully regulated. Ordinarily, and within reason, these reserves are based upon six months' requirements for all purposes. Owing to the large reserves which were available at the end of the war, no increase was made to them during the year other than of oil fuel at Esquimalt. On the other hand, steps were taken to dispose of surplus quantities. With a view also to adjusting the valuation of the stocks from war prices to prices obtaining under present market conditions, a revaluation was effected. At the close of the year 1921-22, the reserve at Halifax totalled in value $1,879,265.92 and at Esquimalt $737,165.03.

The volume of business transacted in 1921-22 at both Dockyards is reflected in the following brief statistics:—

		Number of Transactions Involved
HALIFAX DOCKYARD—		
Value of Stores received	$149,250 46	2,018
Value of Stores returned	134,512 76	1,503
Value of Stores issued	693,784 21	10,299
ESQUIMALT DOCKYARD—		
Value of Stores received	$ 73,449 49	1,188
Value of Stores returned	16,094 20	563
Value of Stores issued	343,611 19	4,942

It is interesting to observe that the overhead costs at the Dockyards in connection with the supply of stores to all ships and other establishments for the year under review was 10.68 per cent in the case of Halifax and 10.08 per cent in the case of Esquimalt. Inasmuch as all costs of whatever nature incidental to the maintenance and operation of the supply bases are included, these percentages are considered very satisfactory.

The system of central storekeeping which was introduced in H.M.C.S. *Aurora* on her commissioning in December, 1920, has proven entirely satisfactory. Under this system the central store officer is substituted for no less than five storekeeping officers charged with the keeping of accounts under the old system. Instead of authorized allowances being laid down for each class of stores which may be drawn, the central store officer is authorized to supply the requirements of the various ships' departments up to the value of an authorized monetary allowance. These allowances were carefully worked out on the basis of the former store warrants and by eliminating all items which by experience were known to be unnecessary. The accounts for the first period having just been closed have not yet been audited. They, however, show a substantial economy to have been effected after the first year of operation under this system.

The audit of all stores accounts had been continued with satisfactory results. Not only the Dockyards but the ships and establishments connected with the department keep store accounts in which receipts and expenditures are fully recorded. It is one of the functions of the branch to control the consumption of all stores so long as their serviceability continues. Each officer responsible for the custody of expenditure of stores of whatever nature must therefore make a full accounting for them, reporting direct to Headquarters where the audit is carried out. In the case of the store accounts of the Dockyards and Armament Supply Depots, a system of concurrent audit at Headquarters was inaugurated a little over a year ago. The new method is giving very satisfactory results, serving not only as an audit but also affording Headquarters information on stores matters at all times as an integral part of the system of stores control.

The system of biennial stocktaking whereby the stocks at both Dockyards are completely reviewed in the course of two years has been continued and good progress made. The results of the stocktaking made are on the whole very gratifying and testify to the efficient manner in which the staffs concerned have performed their duties.

The system of general messing whereby the complements of vessels of the naval and auxiliary services are victualled by the department direct has been continued with very satisfactory results. This system was established in vessels of the Royal Canada Navy in 1910, where it has always proven satisfactory. It was extended to vessels of the Patrol Service and of the Fisheries Protection Service because of the unsatisfactory results which were obtained in the victualling these vessels by stewards who performed this service in consideration of a daily rate for each member of the ships complements. The essential features of the general messing system are direct control of the stewards, the supply of stores purchased by contract and a particular headquarters audit. The experiment has proven an entire success and a considerable saving in the cost of victualling ships of the department has been effected. During the past year the average cost of victualling was 62.5 cents per man per diem.

STATIONERY AND PRINTING DIVISIONS

This division is charged with all matters pertaining to the supply and handling of stationery, printing and books to the Headquarters' staffs and to ships and establishments of the department. Although the main stocks are kept in Ottawa, a Stationery Depot was established at Halifax in 1918, in order that issues might be made more expeditiously and also to save, to a large extent, transportation costs by express. The

work of this division has always been onerous and was especially so during the period of hostilities. During the past year the total expenditure for all stationery and printing service was $121,420.75.

As in the case of the other divisions of the Stores Branch, service is rendered in addition to vessels and establishments of the Naval Service proper to the Hydrographic Surveys, the Tidal and Current Surveys, the Radio Telegraph Service and the Fisheries Protection Service.

ARMAMENT SUPPLY DIVISION AND DEPOTS

The functions of the Armament Supply Division are the supervision and control of all matters pertaining to the provision, receipt, care, repair, testing, examination, issue, accounting and audit, of all Armament Stores, i.e. ordnance and ordnance stores, ammunition, torpedoes and torpedo stores, in connection with ships and establishments of the Canadian Naval Service, as well as the Imperial Service at Halifax and Esquimalt. The Armament Supply Division as presently constituted has only been organized during the past year, prior to which time armament store work was mainly performed by the naval staff with the assistance of the stores staff wherever possible.

Armament Supply Depots are maintained at both Halifax and Esquimalt in charge of thoroughly experienced officers. All necessary facilities for the care and handling of guns, gun mountings, ammunition, torpedoes and torpedo stores exist at both points. In the case of Halifax, the magazines in use at George Island and Fort Clarence are somewhat old and were originally gun batteries. All precautions are, however, taken to ensure the safety of these magazines. To this end, besides the compliance with magazine regulations in all essential respects, electric pumps have been installed for fire protection, lighting arrangements renewed and tracks relayed. Workshops for the testing, repair, etc., of torpedoes and paravanes and for the repair and upkeep of gun mountings and alterations to spare parts, etc., are provided. In the case of Esquimalt the magazines are located at Code Island and although old are in good repair and in every way safe. Facilities also exist for the repair and maintenance of armament stores generally.

In 1920 an agreement was made with the British Admiralty for the amalgamation of both Imperial and Canadian stocks of armament stores at Halifax and Esquimalt. Under this arrangement the Admiralty maintain at these points complete reserves for the Canadian Service in addition to the requirements of the Imperial Service. Considerable advantage is derived thereby, since a large portion of these reserves are of an explosive nature, and are therefore continuously and unavoidably deteriorating, sometimes very rapidly, and liable to become a total loss at any time when the prescribed tests denote that destruction is necessary in the public interest. A handbook of instructions for Naval Armament Supply Depots at H.M.C. Canadian Dockyards has been issued. Under the agreement with the Admiralty, it is provided that Imperial procedure and forms shall obtain. It was therefore necessary to draft regulations complying with this requirement in all essential respects, and at the same time having regard to Canadian conditions and requirements.

Besides the service rendered to ships and establishments of the Naval Service proper, both Canadian and Imperial, issues have been made to vessels of the Fisheries Protection Service and to vessels to other departments of the Government. As an indication of the scope of work of this branch, the following guns of various calibres were mounted in defensively armed merchant ships during the war by the department.

At Halifax, N.S.	223	in No.
Montreal, P.Q.	42	" "
Sydney, N.S.	1	" "
Quebec, P.Q.	3	" "
St. John, N.B.	2	" "
Esquimalt, B.C.	3	" "
Total	274	" "

In addition to mounting the above, thirty-five guns and mountings were despatched from Halifax for mounting in merchant ships at points outside Canada. Also, one hundred drifters and thirty-eight trawlers built in Canada for patrol and mine-sweeping duties were equipped with guns, mountings, rifles, pistols and ammunition. Considerable other work of similar nature and importance was carried out at different times.

The stocks of armament stores carried at Halifax and Esquimalt are necessarily large. In the following statement of values, the stores shown as Canadian represent almost altogether the free gift of armament stores made by the Imperial Government to the department with the squadron.

Value of Stores on March 31, 1922

At Halifax—	
Canadian stocks	$ 827,769 13
Imperial stocks	705,665 70
Total	$1,533,434 83
At Esquimalt—	
Canadian stocks	$ 103,126 21
Imperial stocks	143,809 80
Total	$ 246,936 01

In addition to these values must be added the value of the outfits of H.M.C. ships *Aurora, Patriot* and *Patrician,* estimated at $400,000, $55,000 and $55,000 respectively, which were also a free gift from the Imperial Government.

In view of the generous equipment borne by H.M.C. ships and donated by the Imperial Government, the issues were considerably less than would have otherwise been the case. The following represent the values of receipts and issues of armament stores during the year:—

Receipts—	
At Halifax	$78,083 74
At Esquimalt	2,190 63
Issues—	
At Halifax	$2,350 78
At Esquimalt	12,457 38

As a consequence of the general disarmament of merchant ships and patrol vessels after the war, large quantities of ammunition were landed, with a view to minimizing the risks of keeping such large quantities of explosives which were not likely to be used up for practices within a reasonable time, and because in some instances of obsolescence, age or liability to deterioration, disposition of approximately 792 tons was made by destruction, by drowning, by return to England and Bermuda, as well as by transfer to the Department of Marine and Fisheries and the Department of Militia and Defence. The value of ammunition of which disposition has been made was approximately $252,000. In addition 206 guns and mountings were dismounted from defensively armed merchant ships, drifters and trawlers and were returned to England The value of these shipments alone was $362,492 and their weight 315 tons.

Continuous stocktakings of Imperial and Canadian stocks are carried out at both depots. Reports of all discrepancies are forwarded to Headquarters every quarter, and in the case of Imperial stocks these are transmitted to the Admiralty. Satisfactory progress has been made in connection with these stocktakings and the results have shown great efficiency on the part of the staffs concerned.

The Armament store accounts of the depots as well as of ships and establishments have been kept and rendered in a satisfactory manner.

The staffs of the Armament Supply Depots, though working to a certain extent under a handicap owing to the reorganization and the amalgamation of stocks have coped very successfully with their work. The work of the depots is now in very good order and the personnel thoroughly adapted to the new conditions.

7. FINANCIAL STATEMENT

The total expenditure of the Naval Department under various appropriations for the fiscal year ended March 31, 1922, amounted to $3,686,753.72.

The revenue of the department amounted to $94,484.75.

Refunds on account of demobilization for previous years received by the department amounted to $1,134,475.40.

The following is a detailed financial statement:—

Total revenue of the Department of the Naval Service for the fiscal year ended March 31, 1922	$ 94,484 75	
Demobilization refunds, previous years	1,134,475 40	
		$1,228,960 15
Net expenditure for the year on departmental appropriations		$3,686,753 72
Value of work done and materials supplied for accounts of other Canadian Government departments, British Admiralty and others		1,139,717 16
Gross disbursements for the year		$4,826,470 88

STATEMENT OF APPROPRIATION ACCOUNTS FOR FISCAL YEAR 1921-22

Service	Appropriation	Expenditure	Balance Unexpended
	$ cts.	$ cts.	$ cts.
Naval Service	2,500,000 00	2,041,379 46	458,620 54
Fisheries Protection Service	370,000 00	325,830 20	44,169 80
Hydrographic Surveys	315,000 00	314,988 48	11 52
Radiotelegraph Service	456,480 00	441,014 76	15,465 24
Tidal Service	30,000 00	30,000 00	
Patrol of the Northern Waters of Canada	15,000 00	8,198 42	6,801 58
Customs Dues	500 00	186 77	313 23
Pay of Temporary officers and clerks	40,000 00	22,154 89	17,845 11
Demobilization	120,000 00	119,370 58	629 42
	3,846,980 00	3,303,123 56	543,856 44
Civil Government	210,090 00	170,932 31	39,157 69
Contingencies	40,000 00	39,973 84	26 16

RECAPITULATION

Naval Service	$3,846,980 00	$3,303,123 56	$ 543,856 44
Civil Government	210,090 00	170,932 31	39,157 69
Contingencies	40,000 00	39,973 84	26 16
	4,097,070 00	3,514,029 71	583,040,29

Imperial Government (Special Account)—			
Disbursements	$208,606 01		
Carried from 1920-21	366,368 22		
Total	$ 574,974 23		
Less—			
Reimbursements	$478,985 44		
Transferred to 1922-23	95,988 79		
Total	$574,974 23		
Provisional Bonus Allowance		$ 81,613 52	
Re-Classification Vote 529		85,110 49	
Superannuation 44, Retirement Act, 1920		5,286 67	
Miscellaneous Gratuities		713 33	
		$3,686,753 72	

STATEMENT OF REVENUE FOR FISCAL YEAR ENDED MARCH 31, 1922

Royal Naval College—College fees		$ 4,220 00
Casual revenue		32,287 17
Wireless operators licenses		2,235 80
Wireless operators examination fees		292 00
Premium, discount and exchange		140 14
Miscellaneous revenue		1,117 88
Radiotelegraph service —		
Alert Bay	$ 5,886 90	
Bull Harbour	1,491 64	
Cape Lazo	577 23	
Deadtree Point	1,296 90	
Digby Island	5,807 38	
Estevan Point	4,524 64	
Gonzales Hill	6,507 55	
Pachena Point	67 05	
Point Grey	7,692 33	
Triangle Island	3,204 12	
F.P.S. *Givenchy*	3 54	
" *Malaspina*	10 44	
" *Thiepval*	2 20	
" *Stadacona*	12 88	
C.G.S. *Acadia*	3 36	
H.M.C.S. *Aurora*	1 52	
Barrington Passage	15,900 30	
St. John D.F. Station	526 62	
Magdalen Islands (Grindstone)	486 60	
Kingston	2 43	
Midland	21 66	
Port Burwell	6 19	
Point Edward	12 14	
Port Arthur	24 64	
Sault Ste. Marie	77 66	
Tobermory	4 85	
Toronto	14 98	
		54,161 76
		$ 94,484 75
Demobilization (previous years)		1,134,475 40
		$1,228,960 15

SUSPENSE ACCOUNTS

SHOWING VALUE OF WORK DONE AND MATERIAL SUPPLIED FOR ACCOUNT OF OTHER CANADIAN GOVERNMENT DEPARTMENTS, BRITISH ADMIRALTY AND OTHERS

	Dr.	Cr.	Balance	
			Transferred to 1922-23	Not transferred
	$ cts.	$ cts.	$ cts.	$ cts.
Air Board	11,568 78	11,254 30		314 48
British Admiralty	545,986 67	470,816 38	75,179 35	Cr. 9 06
British Ministry of Shipping	21,695 90	1,057 50	20,638 40	
Canadian Government Merchant Marine	2,706 84	1,655 73		1,051 11
Department of Customs	4,951 74	4,905 54	46 20	
" of the Interior	20,430 76	20,280 25		150 51
" of Militia and Defence	6,641 86	6,634 96		6 90
" of Marine and Fisheries	55,311 06	52,423 00		2,888 06
" of Public Works	1,238 26	1,033 00		205 26
Royal Canadian Mounted Police	3,757 63	3,507 28		250 35
Miscellaneous	465,427 66	441,805 86	119 21	23,472 02
	1,139,717 16	1,015,373 80	96,013 16	28,330 20

STATEMENT OF EXPENDITURE UNDER THE NAVAL APPROPRIATION FOR THE FISCAL YEAR ENDED MARCH 31, 1922

Ship or Establishment	Pay and Allowances	Stores and Allowances	Medical Services	Boys Training and Recruiting	Repairs and Maintenance	Miscellaneous Effective Services	Non-Effective Pay	Advances Suspense Accounts, etc.	Total	Grand Total
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
H.M.C.S. *Aurora*	347,534 62	115,205 27	3,576 63	492 34	70,131 84	17,569 31	19,888 35		574,398 36	
" " fuel		245,828 85							245,828 85	
										820,227 21
" *Patriot*	90,315 22	42,582 95	1,336 49	98 12	41,810 96	2,035 81	6,017 43		184,196 98	
" " fuel		83,296 74							83,296 74	
										267,493 72
" *Patrician*	83,533 01	44,489 34	507 09		48,936 53	2,366 74	5,956 10		185,788 81	
" " fuel		68,834 67							68,834 67	
										254,623 48
Submarines *C.H. 14* and *Ch. 15* and Depot	59,841 36	63,789 62	1,002 46	672 14	14,421 16	2,833 29	975 67			143,535 70
Royal Naval College	102,236 24	31,499 51	2,272 10	262 48	3,249 08	26,012 74	3,855 10			169,387 25
Youths' Training Estab	54,550 05	53,544 88	955 88	3,193 47	22,598 66	3,136 32	2,285 60			120,264 86
Headquarters	31,662 90	7,775 71	56 00			11,286 73	2,371 42			53,152 76
Canadian Officers Overseas	195,410 15	11,469 90	2 00			3,130 71				210,012 76
Barracks—Halifax	12,116 96	9,692 04	354 60	195 00	604 54	1,574 21	428 27			24,965 62
" —Esquimalt	6,842 58	94 26		1 00	36 00	2,223 16				9,197 00
General Account		39,195 19		1,525 41		3,548 75	3,835 50			48,104 85
Halifax					647 28					647 28
Stores		(Credit 316,398 45)								(Credit 346,398 45)
Supply Base Dr. Opr. expenses	1,552 58	60,573 09			21,339 58	8,916 40				92,382 46
" Cr. Percentages		(Credit 37,614 15)								(Credit 37,614 15)
Repair Base Dr. operating expenses	2,070 10				57,035 27	8,224 01				67,329 38
" Cr. Percentages					(Credit 48,634 17)					(Credit 48,634 17)
Fleet General	1,552 58				20,338 90	4,179 18				26,070 66
Armament and Torpedo Depot	3,672 98	40,879 14			4,388 36	627 29	384 50			49,952 27
Esquimalt	4,405 10	19,783 85	20 28		12,587 50	8,668 49				45,465 22
Cr. Percentages		(Credit 18,499 99)			(Credit 1,685 93)					(Credit 20,185 92)
Armament Supply Depot	4,188 13	32,228 15			1,546 15	1,026 68				38,990 11
Allotments	24,079 36									24,079 36
Sundries								28,330 20		28,330 20
	1,005,563 92	568,251 38	10,083 53	6,439 96	269,351 71	107,359 82	45,997 94	28,330 20		2,041,379 46

8. CANADIAN ARCTIC EXPEDITION

The Canadian Arctic Expedition, under the leadership of Mr. V. Stefansson, set out for the Arctic in the summer of 1913.

The Departments of the Naval Service, Geological Survey, Marine and Fisheries, Interior and Customs, all being interested in the results obtained by this expedition, co-operated towards its fitting out and providing the personnel, whilst its general direction was entrusted to the Department of the Naval Service.

The expedition was divided into two main parties, the Northern and Southern Divisions. The Northern Division carried out investigations over Beaufort sea and the far northern islands. Exploration work in this area lasted from March, 1914, until September, 1918.

Three large new islands were discovered to the northeast of Prince Patrick island and geographical investigations of Banks island, Prince Patrick island and Melville island were made. A careful study of the animal and vegetable life of the northern islands was made and where possible examination of mineral deposits was carried out. Coal was discovered on Banks island which could be easily mined in small quantities, owing to its proximity to the surface.

The C.G.S. *Karluk*, which was put into commission for exploratory purposes in connection with the Northrn Division of the expedition, was sunk in ice floes early in 1914. As a result of this loss, a large part of the exploratory work was done on foot. Mr. Stefansson and members of the Northern Division established a new system of exploration whereby they lived on the resources of the country. On ice trips polar bears and seals supplied food for both the men and dogs, as well as clothing and oil fuel. While exploring the northern islands, the meat supply was obtained from the large herds of caribou which frequent the islands during the summer months.

The work of the Northern Division was well performed, considering the difficult regions covered, the climatic conditions and the obstacles encountered in transportation. New lands were added to the British Empire and many of the unknown areas of lands already located were surveyed and their positions definitely fixed.

ICE EXPLORATION

In 1917, plans were laid for a trip across Beaufort sea on the ice to ascertain if islands hitherto undiscovered exist and also to investigate the action of the currents in Beaufort sea. Owing to illness Mr. Stefansson was unable to take charge of this party, but Mr. Storker T. Storkerson undertook the work.

The party left the mainland and encamped on floating ice early in 1918. They floated with the ice for a period of nine months and covered a considerable area of Beaufort sea hitherto unexplored. Careful soundings were taken to ascertain the exact location of the edge of the continental shelf. Investigations of the action of the current were also made.

The party returned to land in the fall of 1918.

SOUTHERN DIVISION

The Southern Division of the expedition carried out the work allotted to it in a creditable manner.

The geographical characteristics of the north coast of Canada were carefully investigated and the shore line was mapped. Much valuable geographical information was obtained, as well as detailed information concerning the life and history of the Eskimo.

The Southern Division was in much closer touch with civilization than the Northern Division, as they were within easy reach of the outpost stations of the Royal Canadian Mounted Police and the Hudson's Bay Company.

The Southern Division completed its work in the summer of 1916.

WRANGEL ISLAND

In 1921, Mr. Stefansson sent a party north with a view of landing on Wrangel island and claiming it as a part of the British Empire. A party from the *Karluk* had landed on Wrangel island in 1914, but had not laid formal claim to it.

The party reached Wrangel island in September and claimed it as a part of the British possessions. The island is in the direct line of the nearest aerial route between England and the Orient and may, with the development of aerial navigation, be valuable as a base.

REPORTS

The whole series of reports for the Canadian Arctic Expedition embraces ninety (90) separate publications. These reports are published in pamphlet and volume form. The price of pamphlets is, in most cases, 10 cents and the volumes unbound are priced 50 cents, cloth bound, $1.

The following is a list of the Canadian Arctic Expedition publications, showing those already issued and those in preparation:

VOLUME I—NARRATIVE OF THE EXPEDITION

Part A—Northern Party, 1913-18. By Vilhjamur Stefansson. (In preparation.)
Part B—Southern Party, 1913-16. By Rudolph Martin Anderson. (In preparation.)

VOLUME II—MAMMALS AND BIRDS

Part A—Mammals of Western Arctic America. Martin Anderson. (In preparation.)
Part B—Birds of Western Arctic America. By R. M. Anderson and P. A. Taverner. (In preparation.)

VOLUME III—INSECTS (Complete)

Introduction. By C. Gordon Hewitt. (Issued December 10, 1920.)
Part A—Collembola. By Justus W. Folsom. (Issued July 10, 1918.)
Part B—Neuropteroid Insects. By Nathan Banks. Issued July 11, 1919.)
Part C—Diptera.
Crane-flies. By Charles P. Alexander.
Mosquitos. By Harrison G. Dyar.
Diptera (excluding Tipulidae and Culicidae). By J. R. Malloch.
(Issued July 14, 1919.)
Part D—Mallophaga and Anoplura.
Mallophaga. By A. W. Baker.
Anoplura. By G. F. Ferris and G. H. F. Nuttall.
(Issued September 12, 1919.)
Part E—Coleoptera.
Forest Insects, including Ipidae, Cerambycidae, and Buprestidae. By J. M. Swaine.
Carabidae and Silphidae. By H. C. Fall.
Coccinellidoe, Elateridae, Chrysomelidae and Rhynchophora. (Excluding Ipidae). By C. W. Leng.
Dystiscidae. By J. D. Sherman, Jr.
(Issued December 12, 1919.)
Part F—Hemiptera. By Edward P. Van Duzee. (Issued July 11, 1919.)
Part G—Hymenoptera and Plant Galls.
Sawflies. (Tenthredinoidea). By Alex. D. MacGillivary.
Parasitic Hymenoptera. By Charles T. Brues.
Wasps and Bees. By F. W. L. Sladen.
Plant Galls. By E. Porter Felt.
(Issued November 3, 1919.)
Part H—Spiders, Mites and Myriapods.
Spiders. By J. H. Emberton.
Mites. By Nathan Banks.
Myriapods. By Ralph V. Chamberlin.
(Issued July 14, 1919.)
Part I—Lepidoptera. By Arthur Gibson. (Issued January 10, 1920.)
Part J—Ortoptera. By E. M. Walker. (Issued September 4, 1920.)
Part K—Insect Life on the Western Arctic Coast of America. By Fritz Johansen. (Issued November 7, 1921.)

VOLUME IV—BOTANY

Part A—Freshwater Algae and Freshwater Diatoms. By Charles W. Lowe. (In preparation.)
Part B—Marine Algae. By F. S. Collins. (In preparation.)
Part C—Fungi. By John Dearness. (In preparation.)
Part D—Lichens. By G. K. Merrill. (In preparation.)
Part E—Mosses. By R. S. Williams. (Issued February 8, 1921.)

VOLUME V—BOTANY

Part A—Vascular Plants. By James M. Macoun and Theo. Holm. (Issued October 14, 1921.)
Part B—Contributions to the Morphology, Synonymy and General Distribution of Arctic Plants. By Theo. Holm. (In press.)
Part C—General Notes on Arctic Vegetation. By Fritz Johansen. (In preparation.)

VOLUME VI—FISHES, TUNICATES, ETC.

Part A—Fishes. By F. Johansen. (In preparation.)
Part B—Ascidians, Etc. By A. G. Huntsman. (In preparation.)

VOLUME VII—CRUSTACEA

Part A—Decapo Crustaceans. By Mary Rathburn. (Issued August 18, 1910.)
Part B—Schizopod Crustaceans. By Waldo L. Schmitt. (Issued September 22, 1919.)
Part C—Cumacea. By W. T. Calman. (Issued October 15, 1920.)
Part D—Isopoda. By P. L. Boone. (Issued November 10, 1920.)
Part E—Amphipoda. By Clarence R. Shoemaker. (Issued September 7, 1920.)
Part F—Pycnogonida. By Leon J. Cole. (Issued January 3, 1921.)
Part G—Euphyllopoda. By F. Johansen. (In preparation.)
Part H—Cladocera. By Chancey Judy. (Issued June 23, 1920.)
Part I—Ostracoda. By R. W. Sharp. (In preparation.)
Part I—Freshwater Sopedoda. By C. Dwight Marsh. (Issued April 21, 1920.)
Part K—Marine Sopedoda. By A. Willey. (Issued June 25, 1920.)
Part L—Parasitic Sopedoda. By Charles W. Wilson. (Issued June 25, 1920.)
Part M—Cirripedia. By H. A. Pilsbury. (In preparation.)

VOLUME VIII—MOLLUSKS, ECHINODERNS, COELENTERATES, ETC.

Part A—Mollusks, Recent and Pleistocene. By William H. Dall. (Issued September 24, 1919.)
Part B—Cephalopoda and Pteropoda.
Cephalopoda. By S. S. Bary.
Pteropoda. By W. F. Clapp.
(In preparation.)
Part C—Echinoderms. By Austin H. Clark. (Issued April 6, 1920.)
Part D—Bryozoa. By R. C. Osburn. (In preparation.)
Part E—Rotatoria. By H. K. Harring. (Issued December 31, 1921.)
Part F—Chaetognatha. By A. G. Huntsman. (In preparation.)
Part G—Alcyonaria and Actinaria. By A. E. Verrill. (Issued April 28, 1922.)
Part I—Hydroids. By C. McLean Fraser. (In preparation.)
Part J—Porifera.
Part H—Medusae and Ctenophora. By H. B. Bigelow. (Issued June 30, 1920.)

VOLUME IX—ANNELIDS, PARASITIC WORMS, PROTOZOANS, ETC.

Part A—Oligochaeta.
Lumbriculidae. By Frank Smith.
Enchytraeidae. By Paul S. Welch.
(Issued November 20, 1920.)
Part B—Polychaeta. Ralph V. Chamberlin. (Issued November 20, 1920.)
Part C—Hirudinea. By J. P. Moore. (Issued February 4, 1921.)
Part D—Gephyrea. By Ralph V. Chamberlin. (Issued June 20, 1920.)
Part E—Acanthocephala. By H. J. Van Cleave. (Issued April 7, 1920.)
Part F—Nematoda. By N. A. Cobb. (In preparation.)
Part G-H—Trematoda and Cestoda. By A. R. Cooper. (Issued February 4, 1921.)
Part I—Turbellaria. By A. Hassell. (In preparation.)
Part J—Gordiacea.
Part K—Nemertini. By Ralph V. Chamberlin. (In preparation.)
Part L—Sporozoa. By J. V. Mavor. (In preparation.)
Part M—Foraminifera. By J. A. Cushman. (Issued February 6, 1920.)

VOLUME X—PLANKTON, HYDROGRAPHY, TIDES, ETC.

Part A—Plankton. By Albert Mann. (In preparation.)
Part B—Marine Diatoms. By L. W. Bailey. (In preparation.)
Part C—Tidal Observations and Results by W. Bell Dawson. (Issued October 1, 1920.)
Part D—Hydrography. (In preparation.)

VOLUME XI—GEOLOGY AND GEOGRAPHY

Part A—The Geology of the Arctic Coast of Canada, West of Kent Peninsula. By J. J. O'Neill. (In preparation.)
Part B—Maps and Geographical Notes. By Kenneth G. Shipman and John R. Cox. (In preparation.)

VOLUME XII—LIFE OF THE COPPER ESKIMOS (Complete)

The Life of the Copper Eskimos. By D. Jenness. (Issued.)

VOLUME XIII—PHYSICAL CHARACTERISTICS AND TECHNOLOGY OF THE WESTERN AND CENTRAL ESKIMOS

Part A—The Physical Characteristics of the Western and Central Eskimos. By D. Jenness. (In preparation.)
Part B—The Ostelogy of the Western and Central Eskimos. By John Cameron. (In preparation.)
Part C—Technology of the Copper Eskimos. (To be prepared.)

VOLUME XIV—ESKIMO FOLK-LORE AND LANGUAGE

Part A—Folk-lore, with Texts, from Alaska, the Mackenzie Delta, and Coronation Gulf. By D. Jenness. (In preparation.)
Part B—Comparative Grammar and Vocabulary of the Eskimo Dialects of Point Barrow, the Mackenzie Delta, and Coronation Gulf. By D. Jenness. (In preparation.)

VOLUME XV—ESKIMO STRING FIGURES AND SONGS

Part A—String Figures of the Eskimos. By D. Jenness. (Ready for Press.)
Part B—Songs of the Copper Eskimos. By Helen H. Roberts and D. Jenness. (In preparation.)

VOLUME XVI—ARCHAEOLOGY

Contributions to the Archaeology of Western Arctic America. (To be prepared.)

The attached Key Map shows the various routes taken and areas covered by the Northern Division of the Canadian Arctic Expedition. The new islands discovered i.e., Meighen Island, Brock Island, and Borden Island are also shown.

The Patrol of Northern Waters including all outstanding matters in connection with the Canadian Arctic Expedition was transferred to the Department of Marine and Fisheries on the 1st July, 1922.

DEPARTMENT OF THE NAVAL SERVICE
KEY MAP
—of—
Canadian Arctic Expedition
DISCOVERIES IN THE ARCTIC SEA
1914—18
Positions Deduced and Mapped
by the
Geodetic Survey of Canada
LEGEND
CROWN PRINCE GUSTAV SEA
A R C T I C O C E A N
BEAUFORT SEA
Melville Sound
BAFFIN BAY
KANE BASIN
Green-land
Siberia
Alaska
BERING SEA
YUKON
N O R T H W E S T T E R R I T O R I E S
DAVIS S

9. GENERAL

Upon the passing of the Act of Parliament establishing a Department of National Defence composed of the Department of the Naval Service, Department of Militia and Defence and the Air Board, action was begun in the Naval Department to reorganize preparatory to amalgamation. The auxiliary services of the Naval Department, consisting of the Radio-telegraph Branch, Hydrographic Survey Branch, Tidal and Current Survey Branch, Patrol and Northern Waters and Fisheries Protection Service and also sufficient personnel from the Accounts, Stores and Records staffs to handle the work of the transferred branches, were transferred to the Department of Marine and Fisheries from 30th June, 1922.

Action was also taken to ascertain the staff required to carry on the work of naval service in the Department of National Defence. Representatives of the Civil Service Commission, acting in conjunction with the officials of the Naval Service have drawn up an organization in which services which can be amalgamated have been combined, and in which a new organization based on present naval requirements is laid down.

I have to express my appreciation for the competent manner in which officials of the department have performed their duties during the past year.

I have the honour to be, sir,

Your obedient servant,

G. J. DESBARATS,
Deputy Minister.

REPORT OF THE WORK

OF THE

DEPARTMENT OF

SOLDIERS' CIVIL RE-ESTABLISHMENT

CANADA

FOR THE YEAR ENDING DECEMBER 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1923

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR EXCELLENCY,—

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Soldiers' Civil Re-establishment for the calendar year ended December 31, 1922.

I have the honour to be

Your Excellency's most obedient servant,

HENRI S. BELAND,
Minister of Soldiers' Civil Re-establishment.

February 1, 1923.

THE DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT

Head Office - - - - - - - - - Daly Building, Ottawa.

MINISTER—The Honourable Henri S. Béland, M.D.

DEPUTY MINISTER—N. F. Parkinson.

ASSISTANT DEPUTY MINISTER AND SECRETARY—E. H. Scammell, F.C.I.S.

DIRECTOR OF ADMINISTRATION—E. Flexman, D.S.O.

DIRECTOR OF MEDICAL SERVICES—W. C. Arnold, M.D.

DIRECTOR OF DENTAL SERVICES—R. B. O'Sullivan, D.D.S., O.B.E.

SUPERVISOR OF EXPENDITURES—J. F. Waddington.

OVERSEAS REPRESENTATIVE—C. G. Arthur, D.S.O.

DIRECTOR SOLDIERS' COMFORTS BRANCH—Mrs. Arthur VanKoughnet (honorary).

District Offices—

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Head Office, Ames-Holden Building, Montreal, P.Q.
Branch Office, Merger Building, Quebec (Medical Clinic only).

"B" Unit, Nova Scotia, New Brunswick and Prince Edward Island—
Head Office, Nurses' Home, Camp Hill Hospital, Halifax.
Branch Office, Pacific Dairies Building, St. John.

"C" Unit, Eastern Ontario—
Head Office, Plaza Building, Ottawa.
Branch Office, Grant House, Sydenham Hospital, Kingston.

"D" Unit, Central Ontario—
Head Office, 185 Spadina Ave., Toronto.
Branch Office, Hamilton Huts, Hamilton.

"F" Unit, Western Ontario—
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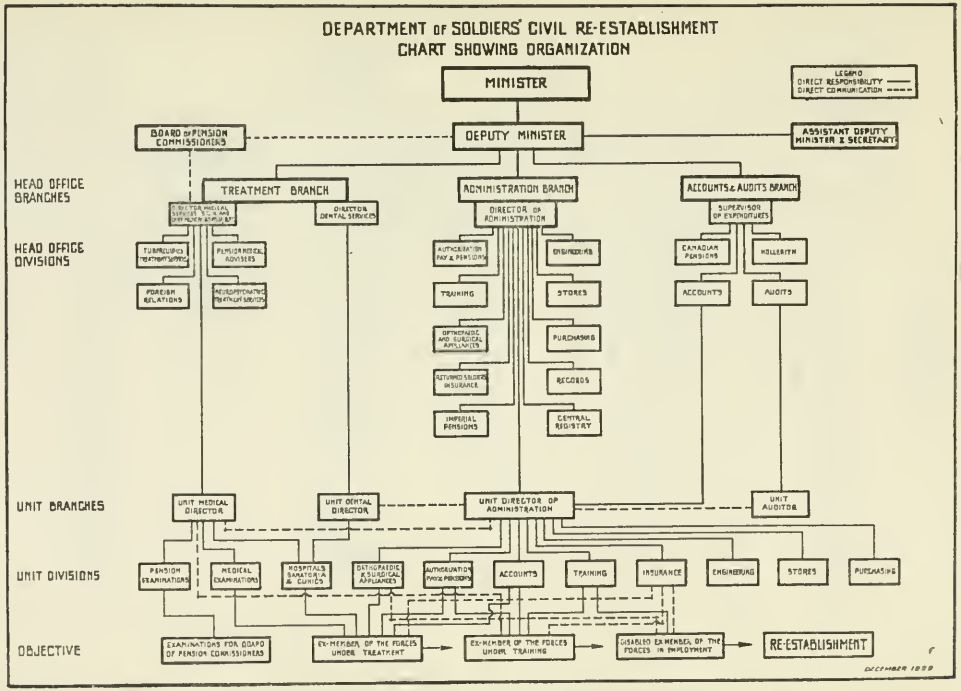
"G" Unit, Manitoba—
Head Office, Notre-Dame Investment Building, Winnipeg.
Branch Office, Customs Excise Warehouse, Port Arthur, Ont.

"H" Unit, Saskatchewan—
Head Office, Veteran Block, Regina.
Branch Office, Canada Building, Saskatoon, Sask.

"I" Unit, Alberta—
Head Office, Lancaster Building, Calgary.
Branch Office, McLeod Block, Edmonton, Alta.

"J" Unit, British Columbia—
Head Office, Duncan Building, Vancouver.
Branch Office, Post Office Building, Victoria, B.C.

Overseas Office—103 Oxford Street, London W., England.


DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
CHART SHOWING ORGANIZATION
MINISTER
LEGEND
DIRECT RESPONSIBILITY
DIRECT COMMUNICATION
BOARD OF PENSION COMMISSIONERS
DEPUTY MINISTER
ASSISTANT DEPUTY MINISTER & SECRETARY
HEAD OFFICE BRANCHES
TREATMENT BRANCH
ADMINISTRATION BRANCH
ACCOUNTS & AUDITS BRANCH
DIRECTOR OF MEDICAL SERVICES R.C.A.M.C. CONSULTANT PHYSICIAN
DIVISION DENTAL SERVICES
DIRECTOR OF ADMINISTRATION
SUPERVISOR OF EXPENDITURES
HEAD OFFICE DIVISIONS
TUBERCULOSIS TREATMENT SERVICE
PENSION MEDICAL ADVISERS
AUTHORIZATION PAY & PENSIONS
ENGINEERING
CANADIAN PENSIONS
HOLLERITH
FOREIGN RELATIONS
NEUROPSYCHIATRIC TREATMENT SERVICE
TRAINING
STORES
ACCOUNTS
AUDITS
ORTHOPAEDIC AND SURGICAL APPLIANCES
PURCHASING
RETURNED SOLDIERS INSURANCE
RECORDS
IMPERIAL PENSIONS
CENTRAL REGISTRY
UNIT BRANCHES
UNIT MEDICAL DIRECTOR
UNIT DENTAL DIRECTOR
UNIT DIRECTOR OF ADMINISTRATION
UNIT AUDITOR
UNIT DIVISIONS
PENSION EXAMINATIONS
MEDICAL EXAMINATIONS
HOSPITALS SANATORIA & CLINICS
ORTHOPAEDIC & SURGICAL APPLIANCES
AUTHORIZATION PAY & PENSIONS
ACCOUNTS
TRAINING
INSURANCE
ENGINEERING
STORES
PURCHASING
OBJECTIVE
EXAMINATIONS FOR BOARD OF PENSION COMMISSIONERS
EX-MEMBER OF THE FORCES UNDER TREATMENT
EX-MEMBER OF THE FORCES UNDER TRAINING
DISABLED EX-MEMBER OF THE FORCES IN EMPLOYMENT
RE-ESTABLISHMENT
DECEMBER 1919

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6. Order in Council, P.C. 4432, dated December 29, 1921, as amended by P.C. 2247 of the 27th October, 1922. Authority under which the Department of Soldiers' Civil Re-establishment may assume the cost compensation in respect to pensioners of 20 per cent and upwards who are engaged in industry.. 117–119

7. Order in Council, P.C. 1525, dated July 22, 1922. Appointment of Royal Commission in respect to pensions and re-establishment.. 120–121

8. Order in Council, P.C. 110/1426, of June 30, 1922. Directing the discontinuance of cashing at par of exchange all Imperial pension cheques and other money orders drawn in sterling.. 122

INTRODUCTORY LETTER

TO REPORT OF THE

DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT

The Honourable H. S. Beland, M.D., M.P.,
Minister of Soldiers' Civil Re-establishment,
Ottawa.

Sir,—I have the honour to submit a report of the work of the Department of Soldiers' Civil Re-establishment for the calendar year 1922, for presentation to Parliament in accordance with the requirements of Chapter 42, of the Statutes of Canada, 1918.

Let me mention particularly, apart from the detailed information contained in the branch reports, these features of the work of the department:—

The number of patients undergoing treatment has continued to decrease. The strength at the end of each of the last three calendar years was:—

	1920	*1921*	*1922*
Patients	6431	5930	4307
Clinical treatments per week	8599	5786	4173

These figures show a decrease of 27·46 per cent in patient strength and 27·87 per cent in the average number of clinical treatments provided during the year 1922. Since June, 1922, there has been little variation in the treatment strength nor is a further material reduction anticipated.

Consistently with the recommendation of the Special Committee of the House of Commons the department has continued where possible to arrange for the provision of general treatment by hospitals privately operated or operated by provincial authorities, and has closed as departmental institutions two hospitals with a total bed capacity of 203.

The Orthopædic and Surgical Appliances Branch was abolished effective March 31, 1922, its functions being combined with those of the Administration Branch under the Director of Administration. No other important changes in organization were effected during the year.

The cost of general administration was further reduced from 6.65 per cent of gross expenditure as at December 31, 1921, to 5.01 per cent of gross expenditure for the calendar year 1922. There has been a reduction in staff from 4,886 at December 31, 1921, to 3,823 at December 31, 1922, a total reduction of 1,063, or 21.76 per cent.

Pursuant to the recommendation of the Special Committee of the House of Commons a further Medical Advisory Board or board to consider appeals of ex-service men against decisions of the department and of the Board of Pension Commissioners in respect to the authorization of treatment or pensions was constituted in December, 1922, under authority of P.C. 1526 of the 22nd July, 1922 (included as an appendix hereto). The board operates as an independent or extra-departmental body. Owing to the short period of its existence a statement of activities has not been presented for inclusion in this report.

Order in Council P.C. 1525 of the 22nd July, 1922, provided for the appointment of a Royal Commission (as recommended by the Committee of the House

of Commons) to inquire into certain allegations in respect to the administration of pensions and on completion of that inquiry to survey existing re-establishment needs; to investigate available data in respect to phases of the parliamentary inquiry as yet incomplete; to consider the disposition of canteen funds, and generally to obtain information in respect to the provision of sheltered employment for the various classes of ex-service men mentioned in Chapter 2, Section 7, of the final report of the Special Committee of the House of Commons which reported during the session of 1922. As the Royal Commission did not proceed to the consideration of questions of re-establishment until January, 1923, their report and suggestions in reference thereto will not be available for some months, pending their presentation no change has or may be made in the policy of the department respecting these matters.

Comprehensive and detailed financial statements and charts have been included in the report of the Accounts and Audit Branch, showing the financial operations of the department since its inception, and the expenditure on pensions since April 1, 1916. These statements illustrate the total cost to date of pensions and re-establishment (other than land settlement).

The sections of the report dealing with the activities of the several branches have been prepared by:—

Treatment Branch.

Medical Services—W. C. Arnold, M.D., Director of Medical Services.
Dental Services—R. B. O'Sullivan, B.A., D.D.S., L.D.S., O.B.E., Director of Dental Services.

Administration Branch.

E. Flexman, D.S.O., Director of Administration.

Accounts and Audit Branch.

J. F. Waddington, Supervisor of Expenditures.

Soldiers' Comforts Branch.

Mrs. Arthur Van Koughnet, Honorary Superintendent.

I have the honour to be, sir,

Your obedient servant,

N. F. PARKINSON,
Deputy Minister.

Ottawa, January 31, 1923.

REPORT OF TREATMENT BRANCH, MEDICAL DIVISION FOR THE YEAR 1922

The general plan of the administration of the medical services of the department underwent no change during the year. The following hospitals were closed:—

Sunnyside Hospital, Calgary, 43 beds.
Strathcona Hospital, Edmonton, 160 beds.

The department continues to operate 15 hospitals and sanatoria, with a total bed capacity of 3,857.

On December 31, 1922, there were on the strength of the department, 4,307 treatment cases, distributed as follows: in Canada 3,942; in Great Britain 119; in the United States 246. Of the 3,942 cases in Canada 3,684 were in institutions. The number of out-patients totally incapacitated was 258. These patients were classified as follows:—

General (medical and surgical))	Canada 1,994, Great Britain 77, U.S.A. 129	2,200
Tuberculous (sanatorium cases)	Canada 1,001, Great Britain 19, U.S.A. 74	1,094
*Mental	Canada 948, Great Britain 23, U.S.A. 43	1,013
Total		4,307

The following figures give the approximate number of admissions to hospital by the Military Hospitals Commission and the Department to December 31, 1922:—

July 1, 1915, to December 31, 1916—by Military Hospitals Commission, approximately	22,742
January 1, 1917, to March 31, 1918	28,258
April 1, 1918, to December 31, 1919—by Department of Soldiers' Civil Re-Establishment	36,625
January 1, 1920, to December 31, 1920	23,591
January 1, 1921, to December 31, 1921	13,890
January 1, 1922, to December 31, 1922	10,015
Total	135,121

Clinical Treatments

May 1, 1919, to December 31, 1919—by Department S.C.R.	126,057
January 1, 1920, to December 31, 1920	447,142
January 1, 1921, to December 31, 1921	300,895
January 1, 1922, to December 31, 1922	216,991
Total	1,091,085

*There is a difference of 653 between this figure and that shown in the table following page 8 (1,666). The former represents those who have been certified mental cases within the meaning of and who are under-going treatment under the provisions of P.C. 580. The latter figure represents the clinical classification.

Institutions Operated by the Department

GENERAL TREATMENT HOSPITALS

Unit	Name	Place	Total Number of Patient Beds
A	Ste. Anne's Hospital (General Service)	Ste. Anne de Bellevue, Que	225
B	Camp Hill Hospital	Jubilee Rd., Halifax, N.S	300
	Lancaster Hospital	St. John, N.B	100
*C	Sydenham Hospital	Kingston, Ont	267
D	Euclid Hall Hospital	Toronto, Ont	30
	Christie St., Hospital	Toronto, Ont	770
	Brant Hospital	Burlington, Oat	205
G	Deer Lodge Convalescent Hospital	Winnipeg, Man	64
I	Colonel Belcher Hospital	Calgary, Alta	126
J	Shaughnessy Hospital	Vancouver, B.C	304

T. B. SANATORIA

A	St. Agathe Sanatoria	St. Agathe Des Monts, Que	190
B	Jordan Memorial Sanatorium	River Glade, N.B	48
C	Sir Oliver Mowat Memorial San	Kingston, Ont	147
I	Central Alberta Sanatorium	Robertson, Alta	181

NEUROPSYCHIATRIC HOSPITALS

A	St. Anne's Hospital (Neuropsychiatric Service)	St. Anne de Bellevue, P.Q	400
F	Westminster Hospital	London, Ont	500
		Total	3,857

*Closed, with effect from January 6, 1923.

Institutions Where the Department Has Arrangements for Accommodation

GENERAL TREATMENT HOSPITALS

Unit	Name	Place
A	Royal Victoria Hospital	Montreal, P.Q.
	Mount Royal Hospital	Montreal, P.Q.
	General Hospital	Montreal, P.Q.
	Jeffrey Hale Hospital	Quebec City, P.Q.
C	General Hospital	Kingston, Ont.
	St. Luke's Hospital	Ottawa, Ont.
	County Carleton General Protestant Hospital	Ottawa, Ont.
F	Hotel Dieu	Windsor, Ont.
	Victoria Hospital	London, Ont...
G	General Hospital	Winnipeg, Man.
	St. Boniface Hospital	St. Boniface, Man.
	Port Arthur Hospital	Port Arthur, Ont.
H	General Hospital	Regina, Sask.
	Grey Nuns' Hospital	Regina, Sask.
	General Hospital	Moose Jaw, Sask.
	Providence Hospital	Moose Jaw, Sask.
	Saskatoon City Hospital	Saskatoon, Sask.
	St. Paul's Hospital	Saskatoon, Sask.
I	University Hospital	Edmonton, Alta.
	Banff Sanatorium	Banff, Alta.
J	General Hospital	Vancouver, B.C.
	Royal Inland Hospital	Kamloops, B.C.
	Kootenay Lake Hospital	Nelson, B.C.
	Colquitz Hospital	Colquitz, B.C.
	Jubilee Hospital	Victoria, B.C.
	St. Joseph Hospital	Victoria, B.C.

T. B. SANATORIA

Unit	Name	Place
A	Nova Scotia Sanatorium	Kentville, N.S.
	St. John County Hospital	St. John, N.B.
D	Mountain Sanatorium	Hamilton, Ont.
	Calydor Sanatorium	Gravenhurst, Ont.
	Muskoka Cottage	Gravenhurst, Ont.
F	Freeport Sanatorium	Kitchener, Ont.
	Byron Sanatorium	London, Ont.
G	King Edward Sanatorium	Winnipeg, Man.
	Manitoba Sanatorium	Ninette, Man.
H	Saskatchewan Sanatorium	Fort Qu'Appelle, Sask
J	British Columbia Sanatorium	Tranquille, B.C.

MENTAL HOSPITALS

A	St. Michel de Beauport Hospital	Beauport, P.Q.
	St. Jean de Dieu Hospital	Longue Point, Montreal, P.Q.
B	Nova Scotia Hospital	Dartsmouth, N.S.
	Falconwood Hospital	Charlottetown, P.E.I.
C	Ontario Hospital	Kingston, Ont.
	Ontario Hospital	Brockville, Ont.
D	Ontario Hospital	Mimico, Ont.
	Ontario Hospital	Toronto, Ont.
	Ontario Hospital	Whitby, Ont.
G	Winnipeg Psychopathic Hospital	Winnipeg, Man.
	Selkirk Hospital	Selkirk, Man.
H	Provincial Mental Hospital	Battleford, Sask.
	Provincial Mental Hospital	Weyburn, Sask.
I	Provincial Mental Hospital	Red Deer, Alta.
	Provincial Mental Hospital	Ponoka, Alta.
J	Provincial Mental Hospital	Essondale, B.C.
	Provincial Mental Hospital	New Westminster, B.C.
	Provincial Mental Hospital	Saanich, B.C.

Admissions, Discharges, Deaths and Total Patient Strength for Year 1922

Total on strength December 31, 1921—5,930. Total on strength December 31, 1922—4,307.

Months	Admissions	Discharges	Deaths	Strength
January	1,059	909	39	6,041
February	942	1,129	48	5,806
March	1,137	1,368	60	5,515
April	729	1,070	32	5,142
May	869	1,202	36	4,773
June	706	859	41	4,579
July	674	756	30	4,467
August	849	913	43	4,360
September	664	649	36	4,339
October	751	764	29	4,297
November	945	902	41	4,298
December	690	650	32	4,307
Total	10,015	11,171	467	
Monthly average				4,827

FOREIGN RELATIONS SECTION

From January 1, 1922, to December 31, 1922, the number of requests for re-examination, many of which are still outstanding, was as follows:—

Canadians in the United States	1,740
Canadians in Europe and Great Britain	1,805
Canadians in other countries	122
Ex-Imperials in the United States	2,287
	5,954

The medical reports received, including those made on application by the ex-soldier, and on admission to and discharge from treatment, as well as those requested for pension purposes, were as follows:—

Canadians in the United States	3,666
Canadians in Europe and Great Britain	1,840
Canadians in other countries	83
Ex-Imperials in the United States	3,518
	9,107

Statement of Patients as on December 31, 1922

CANADIANS IN THE UNITED STATES

In-patients on pay and allowances	150
In-patients on treatment only, including mental	13
Out-patients on pay and allowances	5
	168

EX-IMPERIALS IN THE UNITED STATES

In-patients on pay and allowances	66
In-patients on treatment only	7
Out-patients on pay and allowances	5
	78
Total on strength in U.S.A.	246

Treatment Completed During 1922

CANADIANS IN THE UNITED STATES

Discharged from hospital	560
Cases treated as out-patients	78
Orthopædic and surgical appliance ssupplied	84
Cases where treatment was recommended for non-service disabilities	426
Cases refusing treatment	59
Died, including eight cases not taken on strength	28
	1,235

IMPERIALS IN THE UNITED STATES

Discharged from hospital	456
Cases treated as out-patients	73
Orthopædic and surgical appliances supplied	65
Cases where treatment was recommended for non-service disabilities	250
Cases refusing treatment	47
Died	18
	909

TREATMENT COMPLETED DURING 1922—*Concluded*

EX-AMERICAN SOLDIERS IN CANADA

Reports outstanding	33
Patients in hospital	10
Reports forwarded to Washington	136
Cases discharged from treatment	21
Orthopædic and surgical appliances supplied	3
Retured to the United States	42
Cases refusing treatment	3
Died	3
	251

STATEMENT of Ex-Members of Allied Forces in Canada and United States, excluding Ex-Imperials and Ex-Americans.

Force	Cases refusing treatment	In Hospital	Out-Patients	Reports forwarded	O.S.A. Supplied	Treatment Terminated	Died	Total
Australian	2	5	1	40	3	9	1	61
Newfoundland		5		11	1	2		19
New Zealand		2		8	2	2	1	15
Belgian				1				1
French	2	5		44	4	13	1	69
South African			1	1		1		3
Italian				1				1
British West Indies		1		2		1		4
	4	18	2	108	10	28	3	173

TUBERCULOSIS

Throughout the year 1922 the Department continued to be responsible for the treatment of former members of the forces suffering from tuberculosis attributable to or aggravated by service during the War.

Four sanatoria were operated by the Department, namely, the Laurentian at Ste. Agathe des Monts, P.Q., the Sir Oliver Mowat, at Kingston, Ont., the Central Alberta, near Calgary, and the Jordan Memorial, at River Glade, N.B. In addition, treatment was provided to departmental patients in some ten or more other sanatoria distributed throughout all the provinces of the Dominion. In this way, in accordance with the established policy of the Department, all the leading sanatoria in Canada from coast to coast have continued to co-operate in the treatment of tuberculous ex-service men.

By this means there has been made available not only the most skilled medical supervision possible, but also, as the result of ample financial assistance from the Government, the most suitable accommodation and the most modern equipment.

The accompanying tables afford some statistical details with regard to the tuberculous patients coming under the department's care throughout the year.

Reference to Table I will reveal that although the tuberculous patients discharged throughout the year amounted to almost 1,600, a still larger number was taken on strength for treatment. The net increase, therefore, in the patients under treatment on December 31, 1922, as compared with those on strength at the same date in the preceding year, is even less than the deaths that occurred in the interval.

TABLE I.—Number of Tuberculous Ex-Service Patients admitted, died, discharged, and remaining on strength during year.

(Remaining on Strength December 31, 1921—1,296 Patients)

1922	Admissions	Deaths	Discharges	Strength
January	132	19	98	1,311
February	135	23	121	1,302
March	193	28	191	1,276
April	129	16	175	1,214
May	132	16	192	1,138
June	132	17	137	1,116
July	113	12	124	1,093
August	140	17	134	1,082
September	137	20	98	1,101
October	115	13	128	1,075
November	134	16	111	1,082
December	115	17	86	1,094
Total	1,607	214	1,595	

Average remaining on strength at end of each month, 1,157.

Table II discloses the interesting fact that of the patients taken on strength during the year, 485, or over 30 per cent of the total, were primary admissions, that is, had not previously been treated by the Department for tuberculosis. Although as might be expected, the number of new cases of tuberculosis taken on strength for treatment during 1922 was less than in the preceding year, this diminution amounted to only 113 cases, a drop from 44.3 per cent of the total admissions to 30.2 per cent.

The provision of treatment under Dominion Government auspices, to more than 40 new patients on the average per month, some four years after the cessation of hostilities, is not suggestive of undue hesitation by the Department in recognizing service etiology of tuberculosis, particularly when it is remembered that the majority of those taken on strength for treatment with pay and allowances for the first time in 1922, had actually been discharged from the army for over 3 years, and in not a few instances for 4 years or longer.

TABLE II.—Ex-Service Men Taken on Strength for Treatment for Tuberculosis during 1922, analysed as primary admissions and readmissions.

1922		As Primary Admissions	As Re-Admissions	Total Admissions
January		50	82	132
February		38	97	135
March		52	141	193
April		39	90	129
May		47	85	132
June		39	93	132
July		36	77	113
August		45	95	140
September		34	103	137
October		29	86	115
November		40	94	134
December		36	79	115
Totals	Numbers	485	1,122	1,607
	Per cent.	30·2%	69·8%	100%

In Table III the increase of 11 per cent in readmission cases amongst the tuberculous on the strength of the Department at the end of 1922, as compared with the proportion of readmissions amongst those undergoing treatment at the end of 1921, is due to the natural reduction in the number of new cases of tuberculosis developing amongst ex-service men as a result of the War. It is obvious, of course, that this increase should not be interpreted as indicating a higher proportion of relapses, as has been incorrectly deduced from similar figures previously published. As has been pointed out before, the percentage of readmissions amongst those under treatment will steadily increase as time goes on until 100 per cent has been reached.

TABLE III.—Ex-Service Men on Strength for Treatment for Tuberculosis on December 31, 1922, analysed according to the years in which they were Admitted or last Readmitted.

Year in which taken on Strength for current period of Treatment	As Primary Admissions	As Re-Admissions	Totals
1918 (after April 1)	18	3	21
1919	65	6	71
1920	82	63	145
1921	97	132	229
1922	184	444	628
Total on strength Dec. 31, 1922	446	648	1,094
Reduced to percentage basis	40·8%	59·2%	100%

The total shown in this table includes all patients with tuberculosis in any form, under treatment in Canada, Great Britain, and the United States.

It will be noted that the figures furnished in Table IV are computed and can therefore only be considered as approximately correct, since it is impossible to exclude all the factors affecting their accuracy. However, they have been as carefully compiled as available data permit, and it is believed that the number of patients formerly under treatment for tuberculosis, who were reckoned as being still alive on the 31st of December, 1922, is not excessive.

On December 31, 1922, there were 176 more such patients alive than on the same date in the preceding year. This number, of course, represents the excess of new cases admitted over deaths occurring throughout the year.

The time will come in the not far distant future when the number of new cases taken on for treatment will be offset by the number of deaths. When this occurs the number of tuberculous ex-patients living will have reached its peak.

TABLE IV—Computed Number of Ex-Service Men Taken on Strength for Treatment for Tuberculosis previous to December 31, 1922, and of those Still Alive on that Date

Patients taken on strength for treatment for tuberculosis to December 31, 1922		10,240
Tuberculosis patients struck off strength by death to December 31, 1922	1,493	
Tuberculosis patients who died as pensioners not on treatment strength to December 31, 1922	279	
Total patients taken on strength for treatment for tuberculosis, who died as pensioners or as patients, to December 31, 1922		1,772
Total patients taken on strength for treatment for tuberculosis and who were still alive December 31, 1922		8,468

Tuberculosis Conference

A Conference of twenty-five physicians engaged in tuberculosis work, which comprised, with very few exceptions, all the more prominent authorities on the subject in the Dominion, was held under the auspices of the Department from March 14 to 17 inclusive, in conjunction with the mid-winter meeting of the Canadian Tuberculosis Association. At this Conference were represented nearly all the institutions in Canada in which tuberculous ex-service men were under treatment.

Although the first three days of the Conference were largely devoted to papers and discussions on the tuberculosis problems of ex-service men, and although many of the questions discussed by the specialists in conference with the Department's officials, were of the greatest importance to the service it is endeavouring to render in this regard, nevertheless the broader aspect of the anti-tuberculosis campaign in general was ever kept in mind.

The fourth day was given over to the Tuberculosis Association's part of the programme. At the conclusion of the Conference, the opinion was voiced by many of those attending, that it had been the most comprehensive, intensive, and successful meeting of its kind ever held in Canada.

There can be no doubt that the opportunity afforded by such a conference must result not only in a great increase in the efficiency of the Department's discharge of its responsibilities to tuberculous ex-service men, but also in the better co-ordination of tuberculosis work in general throughout the various provinces of the Dominion.

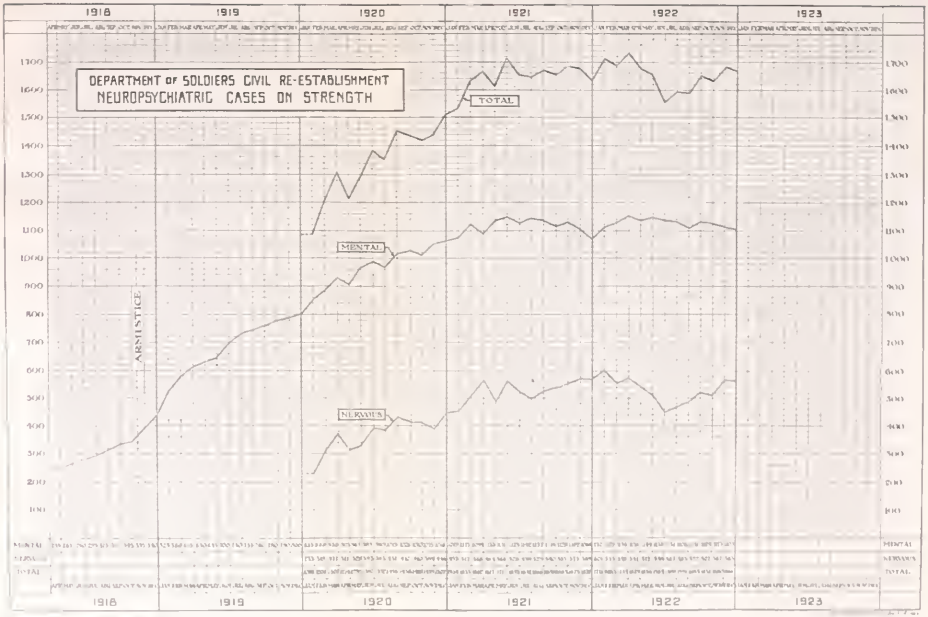
One of the most concrete and practical benefits arising out of the Conference, from a departmental standpoint, was the report of a Committee appointed to consider the basis upon which tuberculosis developing in ex-service men, should be recognized as attributable to or aggravated on service.

The principles formulated in the report of this Committee so successfully crystallized the ideas both of the departmental officials and of the specialists in conference, that a uniform and standard basis of recognition of eligibility for treatment, which had the endorsation of practically every prominent tuberculosis authority in Canada, could be promulgated to all concerned. That this report was unanimously adopted by those attending the Conference is an assurance that the standard of eligibility established is as generous towards ex-service men as is at all compatible with justice to the public.

NEUROPSYCHIATRIC SERVICE

Monthly Neuropsychiatric treatment strength since inception of the Department of Soldiers' Civil Re-establishment in April, 1918, to December 31, 1922 is shown on the accompanying chart. During the first two years, the Department was charged only with the treatment of cases classified as mental or insane. At the beginning of 1920, when hospitalization for ex-service men was turned over to this Department by the Department of Militia and Defence, there were included a considerable number of so-called neurological cases, which are shown in the lower curve through the years 1920, 1921, and 1922. It will be noted that a new peak was reached in March, 1922.

The difficulty of maintaining this return accurately will be realized from the fact that it covers not only ex-service cases from the C.E.F. under treatment in Canada, but also such cases treated on behalf of the Department Overseas,


1918
1919
1920
1921
1922
1923
DEPARTMENT OF SOLDIERS CIVIL RE-ESTABLISHMENT
NEUROPSYCHIATRIC CASES ON STRENGTH
TOTAL
MENTAL
NERVOUS
ARMISTICE
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
MENTAL
NERVOUS
TOTAL

and in the United States, as well as cases being treated by the Department on behalf of the Imperial authorities and the United States and other allied Governments. It is noteworthy that practically during the past two years the treatment strength of neuropsychiatric cases has remained approximately at the high level.

The results of the Department's policy of encouraging voluntary admissions for all neuropsychiatric cases are shown in the following table covering all admissions to the two Departmental Centres during 1922.

It is to be noted that in both Institutions nervous and mental conditions of all types including the severest are received. The remarkable showing of approximately 94 per cent voluntary admissions at Ste. Annes Hospital, and an average of approximately 86 per cent for both Institutions is held to constitute a distinct achievement in the handling of neuropsychiatric patients.

At Westminster Hospital where, during its first year of operation (1920), a preponderance of severe mental cases were received, the percentage of voluntary admissions for the three years has been, 1920, 37 per cent; 1921, 70 per cent; 1922, 78 per cent.

Admissions Departmental Hospitals, 1922

	Westminster		Ste. Annes	
	Voluntary	Commitment	Voluntary	Commitment
January	8	6	6	2
February	9	4	16	3
March	15	7	15	2
April	11	4	17	2
May	7	5	14	0
June	13	1	12	0
July	8	2	11	0
August	16	2	20	0
September	14	4	15	0
October	10	1	17	0
November	15	1	11	0
December	10	2	12	2
	136	39	166	11
	175		177	

77·7 per cent 93·8 per cent

Voluntary, both Hospitals—85·8 per cent

The following table shows the results of treatment of all cases struck the strength of the two Departmental Neuropsychiatric Hospitals during 22. As in former reports, cases discharged as recovered and improved have en grouped together on account of the uncertain criteria by which in many h cases recovery may be judged. A high proportion of the cases shown in the overed-improved group may be considered social recoveries.

DISCHARGES DEPARTMENTAL HOSPITALS, 1922

	Westminster				Ste. Annes			
	Recovered, Improved	Unimproved	Died	Total	Recovered, Improved	Unimproved	Died	Total
January	5	3	1	9	9	0	0	9
February	6	1	0	7	10	4	1	15
March	8	3	1	12	20	2	1	23
April	8	0	0	8	16	2	1	19
May	9	5	0	14	18	0	2	20
June	9	4	2	15	16	6	3	25
July	11	3	3	17	6	1	1	8
August	9	11	2	22	17	7	0	24
September	13	4	3	20	13	6	1	20
October	6	4	2	12	10	7	0	17
November	8	5	2	15	12	9	0	21
December	9	0	1	10	14	6	0	20
Totals	101	43	17	161	161	50	10	221

Occupational Therapy.—The following table shows the percentage of all patients in residence at Westminster Hospital from month to month who have been actively employed at regular occupations, including the work-shops conducted by the Occupational Therapy Branch, ward classes and various other in and out-door occupations.

Increasing emphasis has been laid on this feature of treatment, as will be noted from the fact that at the beginning of the year a little less than one half the total number of patients were regularly and daily employed whereas at the close of the year four-fifths of the patients were so employed.

PERCENTAGE OF ALL IN-PATIENTS OCCUPIED, WESTMINSTER HOSPITAL, 1922

	Per cent
January	47
February	65
March	68
April	56
May	63
June	62
July	64
August	59
September	67
October	73
November	84
December	79

DIAGNOSES, ALL CASES IN RESIDENCE MONTHLY, DURING 1922, STE. ANNES HOSPITAL

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dementia Præcox	222	227	219	218	230	230	230	229	225	226	224	217
Neurosis	44	38	43	33	35	26	20	25	23	22	21	28
Primary Mental Defect	24	27	28	24	22	19	20	19	18	20	19	19
Epilepsy	14	14	14	14	13	11	14	13	9	11	11	11
Cerebro-spinal Syphilis	17	16	18	18	17	16	14	14	14	14	15	16
Alcohol	11	9	11	7	6	6	7	7	9	6	6	5
Drugs	1	1	1	2	2	3	3	3	2	2	2	5
Surgical	0	0	1	1	1	7	0	0	0	2	2	2
Others	30	37	41	43	43	32	36	35	37	38	36	27
Totals	363	369	376	360	369	350	344	345	337	341	336	330

DIAGNOSES, ALL CASES IN RESIDENCE MONTHLY, DURING 1922, WESTMINSTER

——	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dementia Præcox	257	251	259	267	270	270	268	262	264	267	260	261
Neurosis	45	43	40	40	41	38	33	34	33	36	36	38
Primary Mental Defect	45	45	43	40	40	33	34	33	29	31	30	29
Epilepsy	27	21	22	24	26	30	27	30	31	29	31	31
Cerebro-spinal Syphilis	21	22	25	25	26	27	25	25	27	24	22	20
Alcohol	1	4	3	3	2	1	1	1	1	0	1	1
Drugs	3	3	4	4	5	5	5	5	3	3	4	4
Surgical	0	0	0	4	2	3	3	2	3	1	2	2
Others	27	28	30	29	22	25	28	28	28	27	33	35
Totals	426	417	426	436	434	432	424	420	418	418	419	421

REPORT OF MEDICAL STORES SECTION FOR THE YEAR 1922

The department has continued the policy of centralized purchasing and distribution of medical and surgical supplies. It was found possible during the year to close the Winnipeg Stores, the department at the present time operating one Central Depot at Toronto. This has resulted in a considerable reduction of operating costs, and has been entirely successful in maintaining an efficient service.

As heretofore, the Medical Stores Section at Head Office, under the control of the Director Medical Services, superintends the requisition, distribution, consumption and purchase or manufacture of medical and surgical supplies and technical equipment.

The following is a summarized statement of medical stores for the year 1922:—

Total value of stock on hand on December 31, 1921	$ 69,766 93
Total value of goods received in stores during 1922	117,637 76
Total value of issues from stores during 1922	147,225 17
Total value of stock on hand in stores as at December 31, 1922	40,179 52

DENTAL SERVICES

Information concerning the organization of the Dental Services Division is obtainable in the department's annual reports of 1920 and 1921.

During 1922 one clinic was closed and the staff of the division reduced from 73 to 60 employees, or, 18 per cent. The Dental Stores in Toronto, which had been in operation from August, 1920, were closed, a system of local purchases being substituted.

A closer co-operation between the executives of the United States Veterans' Bureau and the department was established.

Time has wrought changes in the mouths of patients, who, as a result of losing portions of the jaw, required special dental appliances. Absorption of, and change of tissue, combined with the stress of mastication, must of necessity affect artificial appliances, and the work of repair and renewal of these appliances is now becoming noticeable and will inevitably increase as time passes.

In dealing with correspondence of all phases and determining the eligibility of applicants and recommendees, to receive dental services, 12,803 files were examined, and 9,463 official communications were forwarded from the office of the Director of Dental Services.

The following is a summary of dental services rendered during the year January 1, 1922, to December 31, 1922:—

DEPARTMENTAL CLINICS

Operations	Canadians	Imperials	Other Forces	Total
Amalgam fillings	8,275	161	7	8,443
Temporary fillings	4,749	87	3	4,839
Cement fillings	3,676	59	.....	3,735
Synthetic porcelain fillings	2,828	61	1	2,890
Root fillings	1,803	20	.....	1,823
Pulp caps	1,827	13	.....	1,840
Treat putrescent pulp	11,119	264	12	11,395
Devitalizations	1,273	9	.....	1,282
Pyorrhoea and trench mouth	9,435	62	.....	9,497
Abscess, gum and special treats	290	69	.....	359
Prophylaxis	7,549	86	1	7,636
Radiographs	67	7	1	75
Local anaesthetics	8,490	137	3	8,630
General anaesthetics	368	5	.....	373
Extractions	15,867	276	7	16,150
Impressions	5,050	287	8	5,345
Bites	3,439	226	7	3,672
Try-ins	4,003	222	6	4,231
Full upper dentures	900	44	.....	944
Full lower dentures	431	19	.....	450
Partial dentures	2,028	132	5	2,165
Gold clasps	3,924	248	10	4,182
Dentures adjusted, repaired and reset	2,310	20	.....	2,330
Gold and porcelain crowns and dummies	133	12	1	146
Facings and backings	45	4	.....	49
Gold lingual bars	26	.....	1	27
Gold inlays	19	1	.....	20
Cast and swedged clasps and occlusial rests	32	5	.....	37
Gilmore, roach and special attachments	26	2	.....	28
Crowns and bridges, removed, repaired and reset	88	4	.....	92
Preparations of roots	34	.....	.....	34
Special examinations and consultations	6	.....	.....	6
General examinations	6,380	221	10	6,611
Totals—Operations	106,490	2,763	83	109,336
Completed	5,301	181	5	5,487

CIVILIAN DENTAL REPRESENTATIVES

Amalgam fillings	1,069	57	.....	1,126
Cement fillings	20	2	.....	22
Synthetic porcelain fillings	374	30	.....	404
Root fillings	94	2	.....	96
Pulp caps	164	10	.....	174
Devitalizations	92	1	.....	93
Pyorrhoea and trench mouth	353	2	.....	355
Gum treatments	35	1	.....	36
Prophylaxis	206	17	.....	223
Radiographs	15	6	.....	21
General anaesthetics	6	1	.....	7
Extractions	213	6	.....	219
Full upper dentures	150	14	1	165
Full lower dentures	91	11	1	103
Partial dentures	292	30	.....	322
Gold clasps	503	46	.....	549
Dentures repaired	40	7	.....	47
Gold and porcelain crowns and dummies	92	25	.....	117
Gold lingual bars	15	.....	.....	15
Gold inlays and fillings	8	.....	.....	8
Cast clasps and occlusial rests	13	.....	.....	13
Special attachments	20	2	.....	22
Crowns and bridges repaired	19	.....	.....	19
Examinations	572	53	1	626
Totals—Operations	4,456	323	3	4,782
Completed	572	53	1	626

Included in the above are three cases, outside of Canada, two Canadians, one completed in Great Britain, and the other in New Zealand, and one Imperial in Newfoundland.

UNITED STATES VETERAN'S BUREAU

——	Canadians	Imperials	Other Forces	Total
Cases referred	563	613	10	1,186
Examinations authorized	285	184	4	473
Treatment authorized	245	155	4	404
Treatment completed	106	55	1	162
Under treatment	139	100	3	242
Under consideration	79	158	2	239
Rejected	199	271	4	474

Operations	Canadians	Imperials	Other Forces	Total
Amalgam fillings	154	113	3	270
Cement fillings	8	4		12
Synthetic porcelain	88	46	1	135
Root fillings	5	9		14
Pulp caps	4			4
Devitalizations	1	2		3
Pyorrhoea	11	15		26
Prophylaxis	71	48	1	120
Radiographs	105	82	1	188
Extractions	218	215	1	434
Full upper dentures	17	13		30
Full lower dentures	10	7		17
Partial dentures	48	37		85
Gold clasps	24	5		29
Bridges and dentures repaired	3			3
Removable bridges	1			1
Gold lingual bars	4	2		6
Gold inlays	1	1	1	3
Examinations	106	55	1	162
Totals	879	654	9	1,542

POST-DISCHARGE TREATMENT COMPLETED UNDER THE PROVISIONS OF PRIVY COUNCIL ORDER, NUMBER 963

Canada	United States	Great Britain	Total
166	11	1	178

Number of cases completed, all forces, all countries 6,453
Number of operations, all forces, all countries 115,660

Included in the above total of completed cases are the following:—

DIRECT DENTAL INJURY

Canada	United States	Total
120	2	122

CROWN AND BRIDGE

Free of Charge	Charges made	Total
60	20	80

PRECIOUS METALS

Scraps and fillings of precious metals received from clinics, when refined at the Royal Mint, amounted to:—

Fine Gold	Fine Silver
16·203 oz	18·37 ozs.

ADMINISTRATION BRANCH

During the year 1922 additional responsibilities have been placed on this branch as follows:—

(1) Administration of British Imperial Pensions in Canada and United States and administration work in connection with documentation and pay of ex-members of the British forces undergoing treatment in Canada and the United States.

(2) The manufacture and supply of orthopædic and surgical appliances to ex-members of the Canadian forces and British Imperial forces resident in Canada and the United States; Provincial Workmen's Compensation Boards, Canadian National Railways and such Dominion Government departments as may require this service.

(3) The direction and control of the Mimeograph and Typing Section at head office which had formerly been on the staff of the Assistant Deputy Minister.

PRESENT ORGANIZATION

The Administration Branch is divided into ten divisions the Chief of each being directly responsible to the Director.

(1) Training.
(2) Insurance.
(3) Authorization Pay and Pensions.
(4) Records.
(5) Stores and Equipment.
(6) Purchasing and Sales.
(7) Engineering.
(8) Central Registry and Mailing.
(9) Imperial Pensions.
(10) Orthopædic and Surgical Appliances.

A considerable reduction of staff was made in this branch during the year due partly to a reduction of work and partly to the increased efficiency of the staff.

	Staff	Salaries
Administration Branch, December 31, 1921	1,482	$ 1,749,674 00
Imperial Pensions Division added September 1, 1922	89	93,350 00
Mimeograph and Typing Section added November 18, 1922	27	22,620 00
Total	1,598	$ 1,865,644 00
Reduction during year	488	550,836 00
December 31, 1922	1,110	$ 1,314,808 00

The staff employed in the Orthopædic and Surgical Appliances Branch was transferred to the control of the Administration Branch on the 1st of April, 1922. As these salaries are absorbed in the cost of manufacturing and are not a charge against the general salary appropriation they are not included in the statement shown above.

	Staff	Salaries
Staff transferred April 4, 1922	215	$ 300,792 00
Reduction since transfer	39	13,716 00
December 31, 1922	176	$ 287,076 00

TRAINING DIVISION

The activities of this division have again shown a very considerable curtailment; not on account of any change in policy but due entirely to the fact that there are fewer cases that come within the regulations and are entitled to consideration.

The time limit for accepting applications was set by Order in Council at January 31, 1920, for all men discharged prior to November 1, 1919, or three months from the date of discharge, or on completion of treatment of men discharged subsequent to November 1, 1919.

A considerable number of cases dealt with during the year had just been released from hospital after long periods of treatment; the balance being made up of those who had, first, either endeavoured to carry on without training and had failed by reason of the fact that their pensionable disabilities had progressed to the stage where they could not continue their particular vocation; or, second, having received training could not carry on for the same reason as given above.

On December 31, 1921, the department was operating three schools which have been closed during the year, and all training is now given either in outside schools or in industries.

It is anticipated that the coming year will show a still further reduction; but it is apparent that there will be a certain number of cases presenting themselves from time to time to which special consideration will have to be given, chiefly among the class enumerated in the previous paragraph, namely, those whose pensionable disabilities have progressed to the stage where they are physically unable to carry on in the line of work for which they were previously trained.

The following indicates the volume of work handled during the year:—

FOR PERIOD JANUARY 1, 1922 TO DECEMBER 31, 1922

Recommendations	410
Not eligible	129
Approved	295
Granted not accepted	16
Commenced	326
Discontinued	43
Completed	693
Extensions	1,140
Changed	93
Cases closed	1,662

The following figures will show the decrease in departmental training classes and instructors over previous years: —

	No. of Schools	No. of Students	No. of Instructors
December 31, 1919	51	6,773	556
December 31, 1920	16	673	92
December 31, 1921	3	14	3
December 31, 1922	0	0	0

Last departmental class closed, 31-8-22.

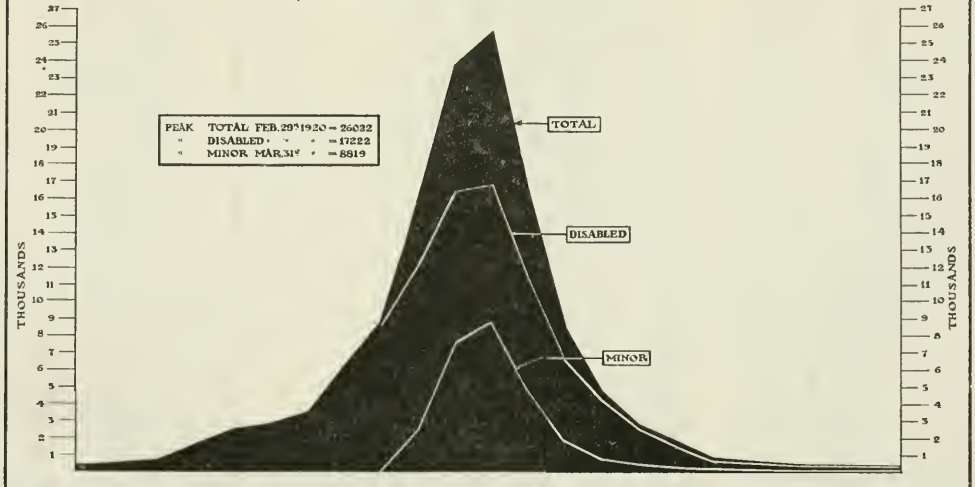
Minors—Number of minors granted training up to December 31, 1922	11,590
Number of minors granted training from January 1, 1922 to December 31, 1922	3
Number of minors in training on December 31, 1920	620
Number of minors in training on December 31, 1921	29
Number of minors in training on December 31, 1922	3

DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT

CHART SHOWING

NUMBER OF MEN IN TRAINING

BY QUARTERS FROM AUGUST 1917 TO DECEMBER 31st 1922



MINOR									6	3436	7337	8819	4747	1883	620	251	105	81	29	16	12	7	3	MINOR
DISABLED	308	366	934	1807	2395	2812	3469	6096	8882	12252	16429	16834	11472	6407	4094	2739	1699	937	603	480	331	267	221	DISABLED
TOTAL	308	366	934	1807	2395	2812	3469	6096	8888	15688	23966	25653	16219	8290	4714	2990	1804	988	634	496	343	274	224	TOTAL
QUARTERS	AUG.	SEPT	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	QUARTERS
YEAR	1917			1918				1919				1920				1921				1922				YEAR

ADMINISTRATION BRANCH D.R.E. DEPT. S.C.R. OTTAWA

Training Strength	Disabled	Minors	Total
December 31, 1920	4,094	620	4,714
December 31, 1921	605	29	634
December 31, 1922	221	3	224

STATEMENT SHOWING NUMBER OF IMPERIALS GRANTED TRAINING UP TO DECEMBER 31, 1922

Ex-Imperials—Residents of Canada on Outbreak of War.

Unit	Commenced	Current	Suspended	Discontinued	Completed
A	103	0	0	19	84
B	28	0	0	3	25
C	77	0	0	9	68
D	471	2	0	57	412
F	50	1	0	11	38
G	86	0	0	13	73
H	19	0	0	2	17
I	73	0	0	11	62
J	181	0	0	23	158
K	16	0	0	2	14
Total	1,104	3	0	150	951

TRAINING OF EX-MEMBERS OF CANADIAN EXPEDITIONARY FORCE IN ENGLAND

The arrangements for the training of these men in 1920 were continued during the year under the supervision of the overseas representative of the department in London, England.

The total number of courses commenced up to December 31, 1922, is 171.

151 completed courses,
14 are still in training.
5 discontinued,
1 transferred to Canada.

GENERAL STATISTICS

The enrolments during 1922 were as follows:—

Month	New Students	Total in Training
January	46	574
February	29	527
March	39	496
April	16	450
May	16	387
June	41	343
July	27	321
August	28	307
September	18	274
October	30	252
November	20	235
December	16	224

DISTRIBUTION OF MEN IN TRAINING

December 31, 1922	Department schools	Nil
	Outside schools	52 or 23·21%
	Industries	172 or 76·79%

A comparison with previous years shows that the use of outside schools has remained fairly constant, but that the training in industries has replaced training in department schools:—

December 31, 1919—22,437 men	Department schools	6,733 or 30·01%
	Outside schools	5,553 or 24·75%
	Industries	10,151 or 45·24%
December 31, 1920—4,714 men	Department schools	673 or 14·28%
	Outside schools	1,208 or 25·62%
	Industries	2,833 or 60·10%
December 31, 1921—634 men	Department schools	14 or 2·20%
	Outside schools	166 or 26·18%
	Industries	454 or 71·62%
Average length of course 1919		6·78 months
Average length of course 1920		7·92 months
Average length of course 1921		9·00 months
Average length of course 1922		8·33 months

	Increase in the number of graduates for year ending December 31, 1922	Grand Total to date
Inside schools	−2	12,550—29·46%
Outside schools	152	8,502—19·95%
Industries	543	21,553—50·59%
	693	42,605

Type of Training

The number of occupations in which the department has trained men is 421 divided into five groups. The number of men who have been trained in each group is as follows:—

Courses under Groups	Students	Per cent	Total Students	Total per cent
A. Corrective training	69	0·16	69	0·16
B. Trade and Industrial training—			24,163	56·71
1 Building trades	1,722	4·04		
2 Electric trades	2,844	6·68		
3 Mechanical trades	7,138	16·75		
4 Metal trades	1,139	2·67		
5 Garment and leather	3,746	8·79		
6 Manufacturing various	669	1·57		
7 Crafts	784	1·84		
8 Woodworking and finishing	1,599	3·75		
9 Food preparations	473	1·12		
10 Textile work	155	0·36		
11 Assembling and repair work	903	2·12		
12 Miscellaneous	1,817	4·26		
13 Printing trades	529	1·24		
14 Commercial art	645	1·52		
C. Business and commercial training			12,504	29·35
1 Administrative positions	1,940	4·55		
2 Subordinate positions	8,818	20·70		
3 Commercial facilities	1,746	4·10		
D. Agricultural training			2,677	6·28
1 General farming	917	2·15		
2 Farm and crop gardening	555	1·30		
3 Animal husbandry	1,024	2·40		
4 Forestry	177	0·42		
5 Fisheries	4	0·01		
E. Professional			3,192	7·50
1 Engineering	1,141	2·68		
2 Medical	778	1·83		
3 Artistic	469	1·10		
4 Other professions	804	1·89		
Total	42,605	100 %	42,605	100%

The total number who commenced training was 52,034; these are accounted for as follows:—

Graduates	42,605
Discontinued	9,205
Current	224
Total	52,034

Discontinued Courses.—Particulars of the reasons given for discontinuance of training are as follows:—

1 Voluntary	2,679—To take a position.	
	187—Died.	
	778—Sick.	
	710—Gone abroad.	
	127—Training allowance insufficient.	
	96—Domestic reasons.	
	301—To take up farming.	
	19—To study elsewhere.	
	323—No information.	
	93—Re-Enlisted.	
	104—P.C. 2328 cases.	
	5,417—58·85%	
Cancelled—		
Non attendance or misconduct		2,165
Lack of interest		1,501
Misrepresentation Federal Emergency Fund		122
		3,788—41·15%

When a graduate has accepted or been placed in employment his case is closed and no further effort is made to keep in touch with him. He is advised, however, that the department is always ready to assist him to obtain employment should he later become unemployed. The following statistics relate only to men whose cases have been closed, of which there are 41,771:—

PRE-WAR EDUCATION

		Per cent
Public school	35,163	84·18
High school	5,400	12·93
University	639	1·53
Business College	569	1·36
Total	41,771	100·00

SOCIAL CONDITION

Single	22,457	53·76
Married	18,889	45·22
Widower	425	1·02
Total	41,771	100·00

OVERSEAS FORCE

Canadian	40,727	97·50
Newfoundland	27	0·06
Imperial	1,009	2·42
Other colonial forces	1	
Allied countries	7	0·02
Total	41,771	100·00

The table given below shows age of men at time they commenced training, not at enlistment:—

Age		Age	
18 and under	1,211	37	819
19	2,371	38	806
20	3,788	39	808
21	3,735	40	749
22	2,617	41	571
23	2,153	42	653
24	1,935	43	628
25	1,796	44	482
26	1,688	45	472
27	1,551	46	444
28	1,394	47	428
29	1,437	48	398
30	1,275	49	306
31	1,090	50	273
32	1,136	51	172
33	1,039	52	161
34	1,007	53	114
35	1,020	54	76
36	895	55	273
		Total	41,771
		Average Age	28·9

CHILDREN

Number of men with 1 child	5,214	
" 2 children	3,274	
" 3 "	2,251	
" 4 "	1,207	
" 5 "	687	
" 6 "	323	
" 7 "	132	
" 8 "	37	
" 9 "	23	
Number of men without children	28,623	
Total	41,771	
Dependent children		30,143

DEPENDENTS OTHER THAN CHILDREN

Number of men with 1 dependent	2,865	
" 2 dependents	389	
" 3	84	
" 4 "	33	
" 5 "	15	
" 6 "	9	
" 7 "	5	
" 8 "	1	
" 9 "	2	
Dependents wives	18,888	
Dependents other than Children		23,105
Grand total dependants		53,248

METHODS OF TRAINING

		per cent
Inside schools only	11,413	27·33
Outside schools only	5,956	14·26
Industry	16,192	38·76
Inside schools and industry	4,999	11·97
Outside schools and industry	887	2·12
Inside schools and outside school	452	1·08
University only	1,625	3·89
Correspondence school only	214	0·51
Night classes only	33	0·08
Total	41,771	100·00

Number of men whose training was	3	months	and	under	1,470
" "	4	"	"		1,254
" "	5	"	"		1,537
" "	6	"	"		7,104
" "	7	"	"		4,538
" "	8	"	"		16,841
" "	9	"	"		2,997
" "	10	"	"		3,420
" "	11	"	"		1,081
" "	12	"	"		816
" "	13	"	"		254
" "	14	"	"		162
" "	15	"	"		96
" "	16	"	"		71
" "	17	"	"		39
" "	18	"	"		28
" "	19	"	"		12
" "	20	"	"		14
" "	21	"	"		6
" "	22	"	"		6
" "	23	"	"		2
" "	24	"	"		9
" "	25	"	and over		14
Total					41,771

Average length of course, 7·7 months.

Five thousand five hundred men, or approximately 13 per cent, changed their course after commencing, the following table gives the reason:—

		Per cent
Course not suitable to disability	1,494	3·58
Unable to place for training	387	0·93
Better adapted to work along other lines	1,797	4·30
Better prospects for re-establishment along other lines	1,736	4·16
Not approved	27	0·06
Change in place of training	10	0·02
Personal reasons	49	0·12
Total cases granted change of course	5,500	13·17
No change	36,271	86·83
Total	41,771	100·00

With 24,018 men, or approximately 58 per cent, the length of course was extended beyond the original time set for the following reasons:—

Allotted time not sufficient	5,464	13·08
To cover time lost during illness	2,045	4·90
Automatic up to 8 months C.L. 261	13,334	31·92
To cover leave	2,440	5·84
To qualify for better position	348	0·83
Further time required due to disability	117	0·28
Change of course	107	0·26
Inefficient training	163	0·39
Total cases granted extensions	24,018	57·50
No extensions	17,753	42,50
Total	41,771	100·00

Courses suspended for various reasons as follows which have since been completed:—

A.W.L.—Pending investigation	117	0·28
Illness	4,219	10·10
To try out position	219	0·53
To attend to personal matters	157	0·38
Functional training in use of artificial limbs	22	0·05
Granted leave	718	1·72
Misconduct	10	0·02
School closed	244	0·58
Total cases granted suspensions	5,706	13·66
No suspensions	36,065	86·34
Total	41,771	100·00

Final disposition according to type of institution from which graduated:—

		Per cent
INSIDE SCHOOLS—		
Employed as trained	5,758	48·15
Employed otherwise	3,391	28·35
Not deserving further consideration	109	0·91
Absorbed by firms	49	0·41
Unable to trace and employed as trained	684	5·72
In business for self	1,304	10,90
Gone abroad	367	3·07
Sick	251	2·10
Deceased	47	0·39
Total	11,960	100·00
OUTSIDE SCHOOLS—		
Employed as trained	5,377	65·43
Employed otherwise	1,519	18·48
Not deserving further consideration	24	0·29
Men absorbed by firms	74	0·90
Unable to trace—presumed employed	475	5·78
In business for self	468	5·69
Gone abroad	142	1·73
Sick	119	1·45
Deceased	20	0·25
Total	8,218	100·00
INDUSTRIES—		
Employed as trained	6,314	29·24
Employed otherwise	5,161	23·90
Not deserving further consideration	77	0·36
Men absorbed by firms	6,402	29·65
Unable to trace—presumed employed	741	3·43
In business for self	1,911	8·85
Gone abroad	468	2·17
Sick	473	2·19
Deceased	46	0·21
Total	21,593	100·00
FINAL DISPOSITION TOTALLED—		
Employed as trained	27,008	64·66
Employed otherwise	10,717	25·66
Total employed	37,725	90·32
Presumed employed	1,900	4·54
Gone abroad	977	2·34
Not a success	213	0·51
Sick	843	2·02
Deceased	113	0·27
Total	41,771	100·00

STATEMENT showing the number of Graduates trained in each of various occupations compared with the number of such graduates in those occupations prior to enlistment December 30, 1922.

Occupations—Pre-War and as Trained	Pre-War	Trained	Grand Total	
			Pre-War	Trained
Corrective training		52		52
TRADE AND INDUSTRIAL—				
Building trades	4,672	1,203		
Electrical trades	833	2,875		
Mechanical trades	2,305	6,647		
Metal trades	1,916	1,014		
Garment and leather trades	615	3,683		
Manufacturing pursuits	243	403		
Crafts	189	757		
Wood finishing and woodworking	301	1,839		
Food preparations	977	466		
Textile work	332	155		
Repair work	89	947		
Miscellaneous trades and occupations	11,554	3,798	24,026	23,787
BUSINESS—				
Administrative positions	1,066	1,932		
Subordinate positions	8,950	8,453		
Commercial facilities	164	1,735	10,180	12,120
AGRICULTURAL—				
General farming	5,358	855		
Farm crop and gardening	2	513		
Farm animal courses	225	1,023		
Forestry	464	182		
Fisheries	137	1	6,186	2,574
PROFESSIONAL—				
Engineering	735	1,066		
Medical	209	761		
Artistic and design	186	603		
Other professional courses	249	808	1,379	3,238
Grand Total			41,771	41,771

BLINDED SOLDIERS' TRAINING AND AFTERCARE

GENERAL REMARKS

As stated in previous annual reports of the department the training and aftercare of Canadian blinded soldiers has been taken care of to a large extent under an arrangement between the department and the Canadian National Institute for the Blind whereby the latter has made available its established facilities for the training and care of civil blind people and at the same time has arranged special training and aftercare facilities where such were necessary to meet the special needs of blinded soldiers. The Canadian National Institute for the Blind was particularly fitted to carry out this work in an organized way due to its being generally established throughout Canada. The general results have, on the whole, been entirely satisfactory and have proven the wisdom of this arrangement, while at the same time aftercare has been placed on a permanent basis which will ensure that individual blinded soldiers, wherever located, may at all times in the future receive the special care and attention suited to their particular requirements.

Certain changes have occurred in connection with arrangements for and conduct of training and aftercare work during the year under review and this

will be dealt with specifically hereunder. The department appreciates the co-operation which has been rendered by other branches of the re-establishment services and organizations interested in the rehabilitation particularly of blinded soldiers. In this regard special mention is made of the co-operation rendered by St. Dunstan's, past and present, both in connection with training and the aftercare of those blinded ex-members of the Canadian forces who elected to take up permanent residence in Great Britain.

TRAINING

It had become quite clear sometime previous to January 1, 1922, that the continued training of blinded soldiers in classes would be due to terminate early in the year. The number in training at Pearson Hall had dwindled to a point where it was difficult to maintain the classes necessary to cover various courses. The following table indicates the disposition of men in training on January 1, 1922:—

Massage—St. Dunstan's	1
Massage—Canadian National Institue for the Blind	2
General and basketry—Canadian National Institute for the Blind	5

The two men taking massage at Pearson Hall completed in March of this year while the one man taking the same course at St. Dunstan's completed in the early autumn. All men taking the general course in Canada had completed by the early spring and Pearson Hall, as a training centre for blinded soldiers, was closed out, pending reopening of classes at a later date should such be justified. The training of individual cases in Canada has, since the closing out of these classes, been carried out with the aid of ordinary facilities of the Canadian National Institute for the Blind through the Home Teaching Department or by special arrangement. It has been decided that in future such training as may be necessary will in all probability be more in the nature of post-graduate courses or re-training in cases where further disabilities have developed since previous training and that such can be given as a matter of aftercare since it now more properly comes under this heading.

While training in various courses has been commendable it is considered that special mention should be made of the Massage course at Pearson Hall, Toronto, and the successes attained by blinded soldiers in their examinations in direct competition with sighted students. In the March, 1922, examinations held in Toronto under the auspices of the Canadian Association of Massage and Remedial Gymnastics, Pearson Hall students achieved a very high standing with one establishing a record for all other blinded soldiers trained in this course in Canada. Another man who stands second highest in the blinded soldier list and who had tried his examinations in September, 1920, in competition with eighty sighted students, stood first in the class and with honors. These standings were secured despite the initial handicap due to blindness in connection with practical work requiring sight. In actual practice, however, it has been found that this handicap has been more than offset by the advantages obtaining both from a psychological standpoint and from the greater concentration and sensitized manual dexterity found in blind masseurs. These excellent results are without doubt due to the rigid class entrance requirements adopted, it being considered that only those men who possessed the proper physical and mental characteristics should be accepted for this highly skilled profession.

AFTERCARE—GENERAL

During the year 1921 arrangements in connection with aftercare as carried out for blinded soldiers by the Canadian National Institute for the Blind under arrangement with the department were gradually built up. This aftercare was supplemented by a comprehensive aftercare trip embracing a personal call on every blinded soldier resident in Canada who could be gotten in touch with. The information given in report for 1921 on this trip was of material assistance in planning aftercare for 1922. During the first three months of the year aftercare was carried out in the usual manner but on the closing out of training at the end of March complete charge of all aftercare details was taken over by E. A. Baker, acting advisor for the department and working through the Canadian National Institute for the Blind.

As there appeared to be a desire on the part of the men that blinded soldiers should be organized for social and recreational purposes the "Sir Arthur Pearson Club of Blinded Soldiers and Sailors", with headquarters at Pearson Hall, Toronto, was fostered and brought into being. This club has been very useful in getting the men interested in social activities and it is expected will be a very good influence in the future. At one of the meetings held in the early summer it was decided that an annual reunion should be held in September and the first took place on the dates September 29, 30, and October 1, at Pearson Hall, Toronto. In all forty-five blinded soldiers attended, principally from Ontario but with representatives from Nova Scotia and Winnipeg. In connection with men living at distant points attending these reunions it is expected that arrangements will be made whereby the attendance of a larger proportion will be made possible.

The reunion itself was a great success. The principal items included in the programme were a sports day, general club meeting, and the unveiling of a memorial tablet to Sir Arthur Pearson, Bart., G.C.B.E. At the general meeting various matters affecting the welfare of blinded soldiers were discussed with the department's representative, who is a member of the club. These matters included aftercare accorded individuals and the important question of policy as to whether periodical aftercare calls should be made on each man. It was finally decided that owing to the expense of travelling to the widely scattered members it would be preferable that each man should, when occasion required, communicate with official in charge of aftercare, stating needs or asking advice. Actual assistance could then be furnished much more efficiently and with less expense. This has removed misapprehensions that formerly stood in the way of efficient service to some of the men. Under this system where, after submission of details, a special report is necessary the same is obtained through regular department or institute channels and provides necessary check.

The blinded soldiers subscribed to and erected in the main hall of Pearson Hall, a bronze high relief memorial tablet dedicated in memory of Sir Arthur Pearson, whose precept and example to all blinded soldiers of the British Empire and particularly to Canadian blinded soldiers, is held in such high esteem. Sir Arthur, who was founder of St. Dunstan's, died on December 9, 1921. He was responsible in a large measure for the progressive ideas brought to bear on the training and re-establishment of blinded soldiers and the Department extends its sympathy to blinded soldiers in their loss and is sincerely appreciative of this token of respect.

One hundred and seventy one cases have been fully trained and settled down, 127 of whom are totally blind, or possess at most a perception of light,

while 44 possess better vision. Below will be found tables showing the occupations being followed:—

Agent, insurance	1
Boot repairing and matmaking	2
Broom-making	1
Book agent	1
Business for themselves	9
Employed in business firms, etc	2
Employed with C.N.I.B	2
Farming	10
General secretary	1
Joinery	4
Massage	18
Matmaking and netting	4
Piano tuning	1
Poultry farming, netting, etc	14
Reed and willow articles, rattan, etc	21
Returned to former occupation	4
Stenographer with Government	6
Stenographer with business firms	1
Translating and teaching French	1
Deceased	5
Unable, unwilling or waiting for work (Living on pension)	19
Total	127

Forty-four men who are partially blind have been trained and settled down as follows:—

Boot repairing and matmaking	1
Broommaking	2
Business for themselves	4
Commercial salesman	2
Employed with business firms, etc	10
Employed with C.N.I.B	2
Farming	1
Instructor with C.N.I.B	1
Massage	3
Matmaking and matting	1
Piano tuning	1
Poultry farming, netting, etc	3
Reed and willow articles, rattan, etc	4
Unable, unwilling, or waiting for work (Living on pension)	7
Working in Government department	1
Deceased	1
Total	44

Of the above 171 cases, 32 are resident in England, and are being looked after by the St. Dunstan's After-Care Department. Three have gone to the United States. One has returned to Belgium (where he has opened a small store) leaving 135 resident in Canada.

AFTER-CARE MASSAGE

In the tables shown above, it will be noted that there are 21 men employed as masseurs, 19 of whom are located in Canada at the present time. These are at the present time employed at the following points: Halifax, St. John, Montreal, Ottawa, Toronto, Hamilton, Winnipeg, Calgary, Vancouver and Victoria. Of these fourteen are employed in hospitals operated under this department, in addition to which they have a private practice, five are employed in civil hospitals full and part time, also in private practice. Of the total number of trained masseurs located in Canada only two are not employed professionally at present. One mentioned in last year's report was an early graduate of St. Dunstan's and finding some difficulty in working up a private

practice decided to follow preference of fruit and poultry farming on Vancouver island where he is still located. It may be noted that he followed that occupation prior to enlistment. The other was employed in one of the Department's hospitals in Vancouver and resigned in the early summer of this year owing to ill health.

A central working clinic has been established at Pearson Hall in Toronto where blinded soldiers in private practice or with part or full time hospital appointments can, if they so desire, treat private patients. Various civil hospitals in the city were approached and as a result cases from these hospitals together with Toronto Transportation Commission, Workmen's Compensation Board, accident insurance and other cases, averaging in number twenty-five per day, are now being treated. This is an important experiment in this line and if it continues to prove successful may result in the arrangement of similar clinics in other important centres.

The work of the masseurs has, on the whole, been highly gratifying. Expressions of satisfaction from hospitals superintendents, eminent surgeons and medical practitioners, throughout the country have testified to the high standard of the work performed and the excellent account which these men are giving of their training and ability. The department feels that the effort made in the training and re-establishment of these men has been more than justified.

Of the masseurs located in Great Britain all are employed, according to last report, with the exception of one who graduated from St. Dunstan's in the autumn of 1922 and who is waiting for appointment there. According to reports received they are progressing satisfactorily.

POULTRY FARMING

Men engaged in this line have, according to reports, been getting along very well. Several of the men have gone in for rearing of prize poultry for sale and also the sale of hatching eggs. One man reports that his pen of Anconas started their laying season with the first egg weighing two and a quarter ounces and the second two and three-quarters ounces.

BRAILLE STENORGAPHERS, DICTAPHONE OPERATORS AND TYPISTS

These men are continuing in employment and apparently giving satisfaction. This has proven an excellent occupation for men who are adapted to it and provides steady and interesting work.

SMALL BUSINESSES

Several men who have been set up in business, handling various combinations of the following lines, tobacco, stationery, newspapers, and periodicals, etc., have with few exceptions, succeeded. The period has been a difficult one owing to the general commercial slump during the last year or more but those who were not lacking in ability or perseverance have survived and are doing surprisingly well under the circumstances. One man has in fact done so well that during the year he sold out his business and is retiring to reside in England. One man who had been trained as a boot and shoe repairer but who had found competition very keen in this line was, owing to previous experience permitted to set up in business and according to last report

is doing very well. The failures are without exception attributable to lack of proper interest and co-operation on part of immediate family from whom assistance would be naturally expected or the development of a tendency on the part of the individual to extravagance either in the conduct of business or personal expenditures which could not end otherwise but in failure. While a number of the original applicants for this form of re-establishment were weeded out to a large extent it was not possible to foresee the domestic or other difficulties which arose in the cases of those who failed, while on the other hand some of those who were doubtful at the beginning have been able to make good. Further it is felt that the course adopted in extending the opportunities to those considered eligible has been fully justified. The men were given the opportunity and can at most blame only themselves for the few failures that resulted.

BASKETRY

A number of men were trained in willow basketry at St. Dunstan's while those trained in Canada took up, for the most part, reed basketry. It has been exceedingly difficult to manufacture and dispose of any form of willow, cane or reed basketry for sometime past owing to the keen competition met with from German, Belgian, French, American and Japanese products. To relieve the situation for blinded soldiers and blind people generally the department was able to arrange for Veteraft shops to retire from competing in these particular lines since there were so many other lines that the shops with sighted employees could follow. Besides the foreign competition, however, another element has now entered the field in the form of technical schools and sighted classes for juveniles, etc., taking up production of reed basketry particularly. In order to relieve this situation the institute has established a special basketry department with a compressed air paint gun for the finishing of all products. This method of finishing permits greater range and improved results while at the same time reducing cost of labour and materials. With this assistance price can be lowered to meet competition, a greater volume of product can be handled and correspondingly better results obtained for those blinded soldiers who consign their products to the institute salesroom. In order to produce certain special lines of willow for which market has been worked up two blinded soldiers have already been given special willow courses and others who are doing reed basketry at the present time may be changed over as opportunity permits. Recent opinions on the quality of the basketry made by blinded soldiers and being handled by the Institute are very flattering. The work is indeed excellent and worthy of note.

The men engaged in various other occupations appear to be progressing favourably though it is expected as time goes on it may be necessary to give them further instruction either in the way of post graduate courses or because of their inability through trade conditions or increased disability to change the occupation for which they were originally trained.

Under existing aftercare arrangements which the department has made, blinded soldiers are now receiving free of charge from the Institute's Library and Publishing Department loan of embossed books on all interesting subjects, also a monthly magazine in embossed type which covers interesting, up-to-date topics, notes of interest concerning fellow blind soldiers and civilians and news of progress of work for the blind in Canada and other countries. Besides this they receive copies of the Institute's quarterly bulletin which has a special section devoted to news of blinded soldiers and of the Sir Arthur Pearson Club of Blinded Soldiers and Sailors.

The men have also been assisted in the securing of typewriting paper, envelopes and ribbons for their typewriters and braille writing paper for their Braille writing machines. This has proven a great convenience and scores of letters have been received indicating gratitude for this form of service.

In line with the generous consideration by Parliamentary Committee blinded soldiers are now eligible for transportation privilege whereby the blinded soldier when travelling with a guide is required to pay only one fare. This removes the previous criticism that blinded soldiers when undertaking necessary private travel were forced to pay fare for an escort. This privilege has been properly protected and is truly appreciated by the men, several of whom have already taken advantage. It will be of particular benefit in connection with the annual re-unions of blinded soldiers. This privilege is not confined to blinded soldiers alone but is extended to include all disabled ex-members of the forces who require an escort when travelling. The department feels that in this provision a great deal has been accomplished toward smoothing the paths of men labouring under the more severe forms of disability.

There is one point which is particularly interesting and gratifying to note and that is in connection with the interest taken by a number of blinded soldiers in their less fortunately circumstanced blind civilian friends. The sighted public can seldom, if ever, feel toward the disability of blindness in the same way as can one who is actually labouring under this handicap. Blinded soldiers who lost their sight in the recent war, while in the prime of life and after having received education and the broadening experience of civil life before the war together with the great experiences overseas can not help but benefit by their interest and intelligent assistance those who handicapped in civil life have struggled since time immemorial against heavy odds. With the advent of the blinded soldier in the present era blind people as a class are being raised from the depression into which they had sunken and have been given new hope. The public in general and governments have viewed with keen interest the results attending efforts which have been made to render civilian blind people self supporting and have ever shown their willingness to assist. It is gratifying to the department to note that the training, care and assistance they have rendered to blinded soldiers is reflecting in so broad and general a way on the welfare of disabled citizens throughout the whole country.

Table showing classification of men under headings indicating loss of vision or defective sight:—

Two hundred and three have come before the department for training from a blind standpoint. Of these 171 have been fully trained, while three are at the present time receiving instruction under the Canadian National Institute for the Blind, and four will receive training when satisfactory arrangements can be made. Of the remaining 25 cases, fifteen are unwilling, or will make no definite decision regarding training, while ten are either physically, or mentally, incapacitated.

Of the cases which have been trained, are now under training, or have been investigated, classification is made as follows:—

Loss of both eyes	52
Loss of right eye	40
Loss of left eye	30
Other visual disorders	81
Total	203

Of this number 150 are totally blind, or possess at most a perception of light.

Of the seven men referred to above under the care of the C.N.I.B. as regards training, all are rated as 100 per cent disabilities on account of blindness.

Of the 25 cases either unable, or unwilling to take training, seven have lost the sight of both eyes, two that of the left, while sixteen are suffering from other visual disorders. Sixteen of the total number are either totally blind or possess at most a perception of light.

VOCATIONAL LOANS SECTION

1. *Organization.*—Owing to the continued decrease in the number of applications received during the past year, it was possible to effect a further reduction in the organization built up during 1920.

2. *General Policy.*—No changes were made in the general policy outlined in the Annual Report of 1920, but the adverse trade conditions which also existed in the year 1921 rendered it necessary to thoroughly investigate each application to ensure that where a man intended using the tools and equipment for the purpose of operating a small one-man business that he had the necessary means to tide it over the initial organization period.

3. Applications received and dealt with during the year 1922 at Head Office:—

	1920 and 1921	1922	Total
Applications received	2,369	94	2,463
Applications approved	1,801	80	1,881
Applications not approved	497	18	515
Applications cancelled	63	3	66
Applications under investigation	8	1	
Amount approved	$ 640,395 49	$ 22,174 40	$ 662,569 89
Amount outstanding	391,011 26	260,689 72	

4. *Service Inspection and Follow Up.*—The policy of having loanees visited at frequent intervals by departmental inspectors was continued but on a much smaller scale than previously as it was possible during the past year to effect an arrangement with the Board of Pension Commissioners whereby those loanees in receipt of pensions could authorize deductions from their pension payments, to be applied in liquidation of their loans. This arrangement which has proven to be exceedingly satisfactory in a great number of cases eliminated the necessity of such frequent inspections and close observation. It was necessary, however, to continue to a certain degree this policy in the case of those loanees who were not in receipt of pension, or who for various reasons did not feel inclined to authorize deductions from their pension.

In each case where an inspection was carried out a report was submitted to Head Office as heretofore, outlining the general condition of the man's business, the condition and approximate value of the mortgaged chattels, the amount of insurance carried and the approximate monthly earnings and expenditures, etc.

5. *Legal Matters.*—The policy of obtaining promissory notes, chattel mortgages, or agreements according to the various provincial statutes has been continued.

In Ontario an amendment was obtained to the provincial statutes, whereby the necessity for the renewal of chattel mortgages was obviated when the Crown is the mortgagee.

Previous to March 31, 1922, it was the policy of the Department to retain at Head Office all promissory notes and a copy of each mortgage executed. This procedure, however has been discontinued, all notes, etc. having been returned to unit directors who retain them in the units. This change assisted in effecting a considerable reduction in the amount of work involved at Head Office.

6. *Discontinued Loans.*—The prevailing adverse business conditions have caused a rather large number of failures during the year which necessitated the repossession of mortgaged chattels for disposal purposes. It is not considered, however, that the proportion of failures was any greater amongst men who received loans from the department than the proportion of failures amongst small businesses generally.

The following statement shows an analysis of the reasons for the failures:

ANALYSIS OF THE REASONS FOR FAILURES OF DISCONTINUED LOANS, UP TO AND INCLUDING DECEMBER 31, 1922

1 Business Depression	249
2 Physical unfitness (recurrence of disability)	48
3 Inattention to business	49
4 Lack of business acumen	20
5 Partnership disagreement	19
6 Domestic trouble	9
7 Unlawful disposal of equipment	9
8 Deaths	5
9 Equipment, partially destroyed by fire	6
10 Disappearence of loanee	33
11 Unable to obtain a suitable business location	23
12 Equipment stolen	2
	472

7. *Collections.*—The following table shows by units the total amount paid to date on promissory notes:—

COLLECTION OF PROMISSORY NOTES UP TO AND INCLUDING DECEMBER 31, 1922

Unit	Amount paid, 1920-21	Amount paid, 1922	Total amount paid
	$ cts.	$ cts.	$ cts.
Quebec	2,318 13	2,484 82	4,802 95
Nova Scotia	3,672 29	4,995 17	8,667 46
Eastern Ontario	4,291 75	5,772 64	10,064 39
Central Ontario	33,502 25	21,310 25	54,812 50
Western Ontario	5,618 35	5,251 87	10,870 22
Manitoba	6,436 72	2,683 63	9,120 35
Saskatchewan	3,857 05	3,918 41	7,775 46
Alberta	8,411 82	6,345 63	14,757 45
British Columbia	13,710 25	10,937 65	24,647 90
New Brunswick	2,742 16	2,875 57	5,617 73
Total of all Units	84,560 77	66,575 64	151,136 41

Adverse business conditions necessitated the renewal and extension of a considerable number of notes due. It was felt, however, provided a man was making a genuine effort to operate his business successfully and was deriving sufficient remuneration from the operation of his business to make a living for himself and family, there was no advantage to be gained by enforcing payment of the note due, as it would only result in the man joining the ranks of the unemployed.

In the majority of such cases repayment was arranged on a small monthly basis, but in a few cases of badly disabled men who were very much handicapped, even this was not possible, as the income from the business was only sufficient to provide for the actual necessities of life.

A generous policy was pursued in such cases in the hope that improved business conditions would enable the man to commence making small repayments.

8. *Loans Fully Repaid.*—The following table shows by Units the total number and amount of loans which have been fully repaid:—

Unit	Repaid up to and including Dec. 31, 1921		Repaid from Jan. 1-22 to Dec. 31, 1922		Total repaid to December 31, 1922	
	No.	Amount	No.	Amount	No.	Amount
		$ cts.		$ cts.		$ cts.
Quebec	2	280 25	1	99 34	3	379 59
Nova Scotia	8	1,201 50	6	1,219 84	14	2,421 34
Eastern Ontario	6	860 71	10	2,015 98	16	2,876 69
Central Ontario	39	10,448 54	43	12,480 33	82	22,928 87
Western Ontario	7	1,684 65	6	1,247 82	13	2,932 47
Manitoba	8	1,894 54	9	2,467 90	17	4,362 44
Saskatchewan	1	486 25	4	1,679 75	5	2,166 00
Alberta	5	2,400 00	9	2,897 83	14	5,297 83
British Columbia	24	7,032 81	22	4,312 55	46	11,345 36
New Brunswick	7	1,450 00	4	557 26	11	2,007 26
Total	107	27,739 25	114	28,978 60	221	56,717 85

TOTAL NUMBER OF LOANS BY TRADES AS AT DECEMBER 31, 1922

Trades	Number of loans granted	Number of loans discontinued	Number of loans repaid	Number of loans active
Auto mechanics	78	24	5	49
Arts and designing	2	2	.....	.....
Apiarist	2	.....	.....	2
Assaying and mining	3	.....	1	2
Auto painting	5	1	.....	4
Auto top repairs	2	.....	.....	2
Barbering	96	24	22	50
Battery service	54	19	6	29
Baking	4	1	.....	3
Blending (tea and coffee)	1	.....	.....	1
Butchering	9	2	1	6
Bicycle repairs	2	.....	.....	2
Brokerage	2	1	1	.....
Boat building	3	.....	1	2
Cabinet making	30	7	9	14
Carpentering	16	2	4	10
Confectionery	12	6	1	5
Commercial work	11	3	1	7
Cleaning and pressing	20	4	1	15
Contracting	25	1	6	18
Carriage repairing	1	.....	.....	1
Commercial art	1	.....	.....	1
Dentistry	22	6	.....	16
Draughting	7	.....	5	2
Decorating	2	1	1	.....
Dyeing and cleaning	1	1	.....	.....
Dairying	1	.....	.....	1
Electrician	24	5	3	16
Electric plating	1	.....	.....	1
Electric welding	1	.....	1	.....
Engineering	1	.....	1	.....
Fishmonger	2	.....	1	1

TOTAL NUMBER OF LOANS BY TRADES AS AT DECEMBER 31, 1922—*Continued*

Trades	Number of loans granted	Number of loans discontinued	Number of loans repaid	Number of loans active
Fishing	3	2	1	
Farming (poultry)	19	2	4	13
Farming (small)	18	2	4	12
General repair work	10	4	1	5
Hardware business	1			1
Harness making	7		1	6
Gardening	24	3	2	19
Hat making	4	2		2
Hair dressing	1	1		
Law	43	2	6	35
Laundry	1			1
Lock smithing	1	1		
Machinist	8	4	1	3
Manufacturing	5	1		4
Mussaging, etc	6	1	1	4
Medicine	6	1		5
Motion pictures	5	1	2	2
Musical instruments	10	3	1	6
Motor-cycle repairing	1			1
Optometry	29	8	1	20
Oxy acetylene welding	16	6		10
Photography	31	6	3	22
Plumbing	9	2	2	5
Pharmacy	7		1	6
Picture framing	2			2
Postmasters	3		1	2
Printing	17	2	1	14
Piano tuning	6	2	2	2
Reed and rattan work	4	2		2
Restauranteur	3	2	1	
Rodentarian	2	1	1	
Shoe repairing	505	135	45	325
Show card writing	25	6	9	10
Sign painting	7	1	2	4
Salesmanship	46	18	10	18
Store keeping	30	12	7	11
Saw filing	2			2
Taxi service	31	21	3	7
Transfer	66	27	6	33
Tailoring	22	14	2	6
Tinsmithing	3			3
Typewriter repairing	5		2	3
Telegraphy	3	1	1	1
Undertaking	2		1	1
Upholstering	14	2	3	9
Vulcanizing	128	40	10	78
Veterinary surgeon	1			1
Watch and clock repairing	32	5	7	20
Woodworking	16	7	3	6
Totals	1,681	460	219	1,002
EDUCATIONAL LOANS				
Agriculture	1			1
Dentistry	5			5
Engineering	5	1		4
Law	9			9
Medicine	8			8
Ministry	1			1
Pharmacy	4			4
Grand totals	1,714	461	219	1,034

BALANCE SHEET—LOANS TO DECEMBER 31, 1922

Date	Debit		Date	Credit	
Dec. 31, 1922	Total amount of loans approved	662,569 89	Dec. 31, 1922	*Cash Repayments—*	
				Loans fully repaid	56,717 85
				Collection on P.N's	151,136 41
					207,854 26
	Increases in amount approved	13,286 38		*Cancelled Loans—*	
				Amount of loans cancelled	55,106 57
				Decreases in amount approved	18,073 93
					73,180 50
				Discontinued Loans—	
				Amount discontinued	161,521 22
				Equipment awaiting disposal—	
				Appraisal value	7,785 72
				Not appraised	2,984 67
				Estimated loss	16,619 04 27,389 43
				Amount realized sale of equipment	134,131 79
					134,131 79
				Amount Loans still Outstanding—	
				On current loans	233,300 29
				On discontinued loans	27,389 43
					260,689 72
		675,856 27			675,856 27

Class "B", Educational Loans.—Very few applications were dealt with under this heading as the majority of the men eligible for this assistance took advantage of it during the year 1920.

Only one application has been received during the year for this class of loan which was approved.

EMPLOYMENT SECTION

As indicated in last year's report, efforts have been made to place the whole question of employment under the jurisdiction of the Employment Service of Canada, in order to avoid duplication of effort in trying to suitably place disabled ex-members of the forces.

Arrangements have been completed with the Provincial Governments of Nova Scotia, Alberta, and Saskatchewan, whereby they will undertake the work, previously carried on by the department.

These arrangements provide that ex-service men, who are handicapped, will be given the first opportunity to fill positions, when available, which are suitable to them.

Negotiations are being carried on with the remaining Governments, and in the meantime the department is continuing the placement work of disabled men in co-operation with the provincial authorities.

Employment of Disabled Men in the Federal Civil Service

As disabled men by law are granted preference in the filling of vacancies in the Federal Civil Service, the head of the Employment Section, Head Office, acts as a liason officer with the Civil Service Commission, and pushes to the fullest extent the claims of the disabled ex-service men for this preference.

The head of the Employment Section is also in a position, through having access to the files of the department to furnish information quickly to the officials of the Civil Service Commission, regarding the percentage of dis-

ability of the various applicants for positions, also, information as to whether in view of his disability, the applicant can carry on in a certain capacity. He keeps in close touch with the heads of branches of the various Government departments in Ottawa, so that no opportunities for the placing of disabled men in the Civil Service will be overlooked.

The following figures indicate the assignments of O.A.S. and disabled men made by the C.S.C.:—

	1921	1922	Total
Disabled men	970	516	1,486
(These figures include 68 amputation cases for 1921, and 39 for 1922).			
Active service men	1,218	920	2,138

EMPLOYMENT STATISTICS TO DECEMBER 31, 1922

	Activities 1922			
	Applicants	Placements	Applications withdrawn	Pending placement Dec. 31, 1922
"A" Unit—				
Quebec	371	222	106	43
Montreal	5,001	2,851	1,263	887
"B" Unit—				
Halifax	1,631	735	742	154
St. John	572	255	277	40
"C" Unit—				
Ottawa	1,856	1,025	555	276
Kingston	271	146	110	15
"D" Unit—				
Toronto	14,472	7,998	4,996	1,478
Hamilton	1,970	1,151	645	174
"F" Unit—				
London	429	199	226	4
"G" Unit—				
Winnipeg	3,215	1,551	1,347	317
"H" Unit—				
Regina	427	378	34	15
"I" Unit—				
Calgary	1,257	523	559	175
"J" Unit—				
Vancouver	4,257	1,168	2,163	926
Total	35,729	18,202	13,023	4,504

RETURNED SOLDIERS' INSURANCE

While in some divisions the work of the department has been decreasing during the year, the activities of the Returned Soldiers' Insurance Division have been steadily increasing and in the number of policies in force it is second only to the largest insurance companies operating in Canada. Within the past year alone the amount of business in force has more than doubled, and apart from this increase the division has been obliged to undertake additional work made necessary by amendments to the Act and by the fact that the cash surrender value, automatic extended term, insurance and paid up insurance privileges have become available.

Although it has not yet been possible to arrive at an actuarial rate of mortality, it is of interest to note that the death rate during the period April

1, 1922, to November 30, 1922, in proportion to the number of policies issued, has been much lower than during the period September 1,1920 when the Act came into force, to March 31, 1922. During the first period the death rate on policies issued was 2.35 per cent, while during the second period it was only 1.007 per cent. This drop in the death rate is considered to be partly due to restriction imposed by amendments to the Act and partly to the fact that many of the worst class of risks took out insurance during the first few months in which the Act was in effect.

Several important amendments were made to the Act at the last session on recommendation of the Select Committee on Pensions, Soldiers' Insurance and Re-establishment. The most important of these was the decision of the House to extend the time for making application under the Act until September 1, 1923, providing another year in which those eligible may take advantage of the protection offered. This has enabled many returned men to insure who, by reason of unsettled economic conditions during 1920 and 1921, were not then able to do so, and has, therefore, considerably extended the benefits of this measure.

A further amendment made upon the recommendation of the Special Committee is one which exempts from deduction the sum of $500 in cases where the beneficiary of insurance is the wife and or child or children of the insured and pension is awarded. Section 10 of the Act provides for deduction from insurance of the present value of any pension awarded on account of the death of a policyholder and prior to the amendment eliminated the insurance entirely, even when the policy was for the maximum amount available. Under the amended Act $500 insurance, as well as pension, is paid in such cases. This amendment has been of material assistance to beneficiaries, having made possible in many cases immediate payment of $500 upon death of the policyholder. Before the amendment came into effect no payment on account of insurance could be made until a decision as to whether pension would be awarded was arrived at, and this sometimes resulted in delay and consequent hardship.

An amendment involving an important change in administrative procedure was one in which the Minister of Finance is empowered under section 13 to refuse to insure any individual when, in his opinion, there is reason for such refusal. With the very large increase in the number of applications received during the year it became apparent that the Act was being exploited in some cases by reason of the fact that applications were submitted by individuals in so serious a state of health from causes in no way related to service that they had no expectation of life. Claims were occurring in these cases sometimes within a few weeks of the date of issue of the policy and not infrequently beneficiaries were relatives not in any way dependent upon the insured and not in need of insurance protection. The provisions of the Act were becoming better known and consequently the number of applications of this type increased. In one month alone claims incurred increased from $40,000 to $90,000. The Board of Pension Commissioners, which under the Minister of Finance, is responsible for the policy to be carried out in the administration of the Act, instituted a procedure of withholding acceptance of certain applications until such time as the Parliamentary Committee might consider the question. The Committee went into the subject very fully and recommended to Parliament a schedule of definitions as to the classes of cases in which insurance may be refused. Parliament adopted the schedule with the proviso that it should not apply to applicants with dependents until after January 1, 1923. The operation of this schedule has not deprived any applicant in need of insurance protection who, by reason of war service, is unable to obtain it in the ordinary

way. Furthermore, a very broad interpretation has been given to the law with the result that the only applicants eliminated have been those with little or no expectation of life. Insurance is being granted daily on the lives of persons who, if acceptable at all to an ordinary insurance company, could obtain protection only at prohibitive rates.

A feature of the business written under the Act is the exceptionally low rate of lapse. The high ratio of lapses, particularly on new business, is the bane of the life insurance business generally, some companies losing through lapse as much as 35 per cent of new business in the first year. Of 17,367 policies the total lapses were 3,494. Of this number 1,865 policyholders reinstated their policies, leaving net lapses at 2,408. This very favourable experience may be attributed to the fact that no pressure is brought to bear to induce any individual to insure under the Act. In all cases the initiative in making application must be taken by the individual.

Policies issued under the Returned Soldiers' Insurance Act, like all good life insurance policies, contain a provision which automatically protects them from lapse after premiums have been paid for a certain period. This period, in the case of soldiers' insurance, is two years and the first policies fell within this provision in September, 1922, being those issued in September, 1920, just after the Act came into force. The number is increasing month by month. The operation of this provision involves the notification of each policyholder who fails to pay a premium within the month of grace that he may (1) reinstate his policy in the ordinary way, (2) surrender it for cash, (3) obtain a paid-up policy for a smaller amount, or (4) allow it to be continued in force without further payment of premiums for a given period. This involves a good deal of correspondence and record keeping and is a section of the work which will increase with the lapse of time.

The system of deducting premiums from pension of policyholders which was authorized by the Parliamentary Committee of 1921, has now been in operation for more than one year and is proving most successful, some 5,000 policyholders having taken advantage of this privilege. The amount received each month from the Pension Division on account of insurance premiums is over $22,000. The system is a convenience both to the insured and to the department.

The total premium income is now in the neighbourhood of $100,000 per month represented by about 11,000 remittances monthly. Most of this money is received in small amounts and its care requires a great deal of work and the utmost trustworthiness on the part of the employees responsible for handling it. It is most gratifying to be able to report that this business has been handled without the loss of a cent.

POLICIES ISSUED

Distributed by Place of Origin

Period April-December, 1922			Period September, 1920-March, 1922		Total Issued	
Prince Edward Island	22	$ 68,500	15	$ 61,500	37	$ 130,000
Nova Scotia	250	624,000	271	809,500	521	1,433,500
New Brunswick	172	395,500	211	599,500	383	995,000
Quebec	638	1,472,000	826	2,187,500	1,464	3,659,500
Ontario	2,686	5,888,000	4,050	10,167,500	6,736	16,055,500
Manitoba	634	1,427,500	836	2,068,500	1,470	3,496,000
Alberta	584	1,521,000	755	2,100,500	1,339	3,621,500
Saskatchewan	568	1,454,500	715	2,015,500	1,283	3,470,000
British Columbia	1,110	2,338,000	1,535	3,347,000	2,645	5,685,000
Out of Canada	1,365	2,967,500	611	1,585,500	1,976	4,553,000
Yukon			2	6,000	2	6,000
Total	8,029	$18,156,500	9,827	$24,948,500	17,856	$43,105,000

DISTRIBUTED BY SERVICE AND SEX

MALE

C.E.F.	7,738	$17,403,000	9,322	$23,487,500	17,060	$40,890,500
Active Militia	19	59,500	33	99,000	52	158,500
Imperials	247	646,000	432	1,242,500	679	1,888,500
Foreign government	2	4,000	16	64,000	18	68,000
	8,006	$18,112,500	9,803	$24,893,000	17,809	$43,005,500

FEMALE

Widows	3	$ 5,000	5	$ 9,000	8	$ 14,000
C.E.F.	19	38,000	19	46,500	38	84,500
Foreign government	1	1,000	.....	.....	1	1,000
	23	44,000	24	55,500	47	99,500
Total	8,029	$18,156,500	9,827	$24,948,500	17,856	$43,105,000

DISTRIBUTED BY PREMIUM FREQUENCY

Single	15	$ 22,500	17	$ 28,000	32	$ 50,500
Annual	688	1,567,000	680	2,441,000	1,368	4,008,000
Half-yearly	965	2,176,000	1,368	3,732,500	2,332	5,908,500
Quarter-yearly	1,566	3,519,000	1,891	4,928,000	3,457	8,447,000
Monthly	4,795	10,872,000	5,871	13,819,000	10,666	24,691,000
Total	8,029	$18,156,500	9,827	$24,948,500	17,856	$43,105,000

STATISTICS FOR PERIOD APRIL 1, TO DECEMBER 31, 1922

APPLICATIONS

Applications received	8,076	$21,239,500
Applications cancelled	251	780,000
Net applications received	7,825	$20,459,500
Net applications received September, 1920-March, 1922	10,463	$26,662,000
Total net applications received to date	18,288	$47,121,500
Applications received from Unit Representatives	3,386	.....
Applications received direct	4,690	.....

DEATH CLAIMS

Total policy value of death claims	202	$ 607,500
Total policy value of death claims, period September, 1920-March, 1922	232	823,500
Total policy value all death claims	434	$1,431,000
Settled by cash payment or annuity	179	$500,762 67
Settled by cash payment or annuity period, September, 1920-March, 1922	111	440,000 00
Total all claims settled	290	$940,762 67
Insurance cancelled by Sec. 10 R.S.I.	54	$134,157 13
Insurance cancelled by Sec. 10 R.S.I., period September, 1920-March, 1922	39	139,000 00
Total claims settled by Sec. 10	93	$273,157 13
Claims pending settlement	51	$217,080 20

STATISTICS FOR PERIOD APRIL 1, TO DECEMBER 31, 1922—*Concluded.*

LAPSES

Period April 1 to December 31, 1922	1,941	$ 4,658,500
Period September, 1920, March, 1922	1,553	3,918,000
Total Lapses	3,494	$ 8,576,500
Nett Lapses	2,408	

RE-INSTATEMENTS

Period April 1 to December 31	1,086	$2,620,000
Period September, 1920-March, 1922	779	2,085,500
Total re-instatements	1,865	$4,705,500

INCOME AND EXPENDITURE

Income—		
Period April 1-December 31	$637,622 53	
Period September, 1920-March, 1922	512,157 11	
Total		$1,149,779 64
Expenditure—		
Period April 1-December 31	$242,509 48	
Period September, 1920-March, 1922	127,169 57	
Total		$369,679 05
Balance		$780,100 59

PAY AND PENSION DIVISION

The functions of this division have not changed materially during the past year. There has been a reduction in the volume of the work with a corresponding reduction in personnel and overhead expenditure.

On January 1, 1922, the staff numbered 101, with a monthly pay-roll of $8,118.33; on December 31 the number of staff is 66, and the total monthly pay-roll $5,790.50.

CLOTHING

Clothing still in stores is available to patients on the strength of the department on the repayment plan as long as the present supplies last. Free clothing is issued to all insane patients. Class A and B patients, that is those whose insanity is attributable to service, who recover, have the cost of clothing deducted from their accumulated pay and allowances on discharge.

In the case of Class C patients, that is those whose insanity is not attributable to service, the value of the clothing supplied is written off on the authority of the Director of Administration.

WAR SERVICE GRATUITY

During the year 33 applications for the payment of war service gratuity in a lump sum were approved and paid. War service gratuity accounts, other than the above, were completed to the number of 72.

War service gratuity	$ 27,601 85
Interest on closed accounts	3,546 29
Total paid	$ 31,148 14
War service gratuity unpaid	$ 193,616 14
Interest at 5% on above.	

Pay and Allowances

On April 1, 1922, the method of computing treatment pay and allowances for both ex-members of the Canadian Expeditionary Force and their dependents was changed from a monthly to a daily basis. By so doing many of the complaints regarding rates of pay and allowances have entirely disappeared.

Prior to 1922 considerable delay took place in the making of payments to ex-Imperials receiving treatment for service disabilities, due to the fluctuating rate of exchange and to the fact that such payments had to be made in sterling through the Officer Paying Imperial Pensions. The unit offices have now authority to issue treatment allowances to ex-members of the Imperial forces as they become due, and on discharge from treatment, so that the delays above mentioned have now been obviated.

The department pays treatment allowances to ex-members of the Australian, New Zealand and South African forces when medical treatment for a service disability is indicated. Arrangements with the different governments concerned have eliminated undue delay in the payment of allowances in these cases.

Deaths, Funerals, Personal Effects

In the case of the death of a patient on the strength of the department notification is telegraphed by the Unit Director of Administration to the next of kin, if in Canada, or by the Chief, Pay and Pension Division, if in the British Isles. In the matter of funerals the department conforms as far as possible to the wishes of relatives. Letters of condolence go forward to the next of kin in all cases. The personal effects of deceased patients are taken care of by the Unit Director of Administration, until advised by the Director of Records, Department of Militia and Defence, as to their disposal.

In order to standardize the cost of funerals, tenders were called for and contracts made for funeral services in each unit throughout Canada.

Assistance for the Return of Ex-Members of the Forces to Relatives in Special Cases

The Parliamentary Committee on Pensions and Soldiers' Re-establishment recommended that in special cases assistance be granted to men who were patients of the department to return to their people overseas.

During the past year authority was granted in five cases as follows:—

(1) P.C. 897, dated April 26, 1922, authorized transportation of No. 117513, Ex-Sgt. R. Robinson, from Calgary to England.

(2) P.C. 2261, dated October 27, 1922, authorized transportation for Ex-Nursing Sister Katherine McLeod from Ottawa to Scotland.

(3) P.C. 97, dated January 16, 1922, authorized transportation for No. 1012829, Ex-Pte. T. Murphy, from Vancouver to England. Mr. Murphy declined to avail himself of this opportunity.

(4) P.C. 244, dated February 4, 1922, for Ex-Pte. Jas. A. Leigh, No. 523638, authorized transportation from Calgary to England. Mr. Leigh, however, was seriously ill and never recovered sufficiently to be able to travel. He died on May 8, 1922.

(5) P.C. 634, dated March 23, 1922, authorized transportation for Ex-Pte. J. M. Grady, No. 447438, from Calgary to England. Before this Order in Council could be given effect Mr. Grady returned to England where he resided for a time. He has returned to Calgary and is at present on the strength of the department for treatment.

Precis from Medical Documents

During the year ending December 31, 1922, this division compiled complete records of the military history of 7,644 men. These precis have been requested by the Medical Branch for treatment or pension purposes. Each record contains full information from the date of the man's enlistment until the date of his discharge; periods of service in Canada, England, France, and other theatres of war; dates of admissions to and discharges from Field Ambulances, Casualty Clearing Stations, Stationary and General Hospitals; proceedings of Medical Boards, etc.

Cases in the United States of America

Treatment allowances issued to the men in the United States during the year for ex-Canadians amounted to $125,452.95; total paid out for ex-Imperials, $51,357.20, making a total of $176,810.15, while men still on strength have a credit balance of $11,135.

In addition the sum of £1,708 1s. 0d. was paid out to ex-Imperials who did not have a pre-war residence.

The co-operation between the United States Veterans' Bureau and this department has been commendable. As a result of the forwarding of the daily consolidated telegram, and the prompt rendering of S.C.R. Form 399 by the United States officials, prompt payment to ex-service men was made possible.

In making investigations regarding the eligibility of dependents in the United States, the American Red Cross has co-operated to the fullest extent, and the reports supplied indicate that their information, at all times, was secured from reliable sources.

This section has also reimbursed such pensioners as are entitled to monetary consideration for loss of time for attending pension examination, etc. The amount paid for compensation to clinical treatment cases has been kept very low, as during the year 642 clinical treatments were furnished, and for this reimbursed the patients to the extent of $369 only.

On December 31, 1922, there are 246 ex-service men in hospitals in the United States, 167 ex-Canadians, 76 ex-Imperials, 1 ex-Australian and 2 ex-New Zealanders. In the case of the 167 ex-Canadians above mentioned, 30 are insane cases, 6 treatment only, and 131 in receipt of Pay and Allowances. Of the last 131 mentioned, 97 are in receipt of pension.

Pension Authorization

This section carries out the administrative work involved in giving effect to the decisions of the board in respect to the award, authorization, discontinuance or refusal of pension, by issuing the necessary authority for the payment, suspension or discontinuance of pensions awarded by the board.

Number of fyles dealt with	82,420
British, French and Italian supplementary pensions	228
M. D. Long Service pensions	160
D.C.M.	16
Number of proceedings drawn on C.E.F. awards	59,672
Pensions refused	1,437

Deportations

The Department of Immigration and Colonization has co-operated and given every assistance in returning to England such ex-Imperials as were likely to be on the strength for treatment for some considerable time, and who upon discharge would not in all probability become self-sustaining citizens in Canada, but on the contrary become public charges.

The Department of Immigration and Colonization have investigated all cases referred to them, and during the past year, approximately sixty cases have been returned to the British Isles.

INVESTIGATION SECTION

During the year 1922, investigations as to the condition of widowed mothers and parents were approximately 3,000. Upon these investigations the Board of Pension Commissioners decide whether pension shall be continued, cancelled, increased or decreased. Other investigations carried on by the section include: (*a*) Inquiry as to whether pension is being applied for the proper care of such children as are in receipt of pension. (*b*) Cases of widows remarrying. (*c*) Cases of children under the care of guardians. (*d*) Reports on the dependency of persons for which additional pension is claimed. (*e*) Complaints regarding disability pensioners who are not supporting their dependents. (*f*) Cases where it is shown that the death of a pensioner is attributable to service and that the dependents are eligible for pension.

Head Office Disablement Board in Control of Functionally, Neurologically and Mentally Sub-Normal Cases Under Provisions of P.C. 2328.

Under Order in Council P.C. 2328, 1919, authority was given to the Department of Soldiers' Civil Re-establishment to assist problem cases, *i.e.*, functionally, neurologically, and mentally sub-normal men, by providing suitable places where light occupation combined with medical care could be given such cases and where they could be kept under careful observation and proper working conditions for the purpose of ascertaining whether such cases could be dealt with as follows:—

(*a*) Restored to normal health.

(*b*) Made fit to resume their places in industrial life.

(*c*) To ascertain that if neither of the foregoing were possible to what extent they would be capable of useful work.

Various occupations, including basketry, toy-making, reed furniture making, light metalwork, woodwork, etc., were provided.

NUMBER OF MEETINGS HELD BY THE HEAD OFFICE DISABLEMENT BOARD DURING THE YEAR 1922, TO DECEMBER

January	9	Cases dealt with	185
February	7	"	125
March	10	"	162
April	7	"	103
May	8	"	109
June	8	"	138
July	8	"	118
August	9	"	139
September	7	"	120
October	10	"	142
November	8	"	142
December	8	"	130
Total	99		1,613

Following is a statement by units, classified according to disability to December 31, 1922:—

P.C. 2328 CASES SINCE COMMENCEMENT OF OPERATIONS

Admissions

Unit	Old Age	Physical	Mental	T.B.	Total	Total re-admissions	Actual Number of cases
A	.....	6	10	1	17	.....	17
B	.....	1	12	.....	13	2	11
C	17	46	28	13	104	25	79
D	62	191	144	239	636	97	539
F	3	24	12	6	45	7	38
G	13	19	38	5	75	1	74
H	.....	1	2	.....	3	.....	3
I	16	34	21	13	84	11	73
J	5	25	28	5	63	5	58
K	1	2	1	.....	4	.....	4
Total	117	349	296	282	1,044	148	896

Discharges

A	.....	5	7	1	13	.....	13
B	.....	1	11	.....	12	2	10
C	8	30	23	10	71	25	46
D	35	123	128	185	471	97	374
F	3	18	11	6	38	7	31
G	11	18	29	5	63	1	62
H	.....	1	2	.....	3	.....	3
I	10	25	20	8	63	11	52
J	5	17	26	5	53	5	48
K	.....	2	.....	.....	2	.....	2
Total	72	240	257	220	789	148	641

P.C. 2328 CASES

On Strength

A	.....	1	3	.....	4	.....	.....
B	.....	.....	1	.....	1	.....	.....
C	9	16	5	3	33	.....	.....
D	27	68	16	54	165	.....	.....
F	.....	6	1	.....	7	.....	.....
G	2	1	9	.....	12	.....	.....
H	.....	.....	.....	.....	.....	.....	.....
I	6	9	1	5	21	.....	.....
J	.....	8	2	.....	10	.....	.....
K	1	.....	1	.....	2	.....	.....
Total	45	109	39	62	255	.....	.....

Struck off Strength

Unit	Employed and Pensioners	Presumed Employed	Un-employed	Trans. to Medical	Trans. to Training	Sick	Deceased	Total
A	5	2	3	2	.....	1	.....	13
B	6	1	.....	3	.....	.....	.....	10
C	14	8	6	13	.....	5	.....	46
D	160	81	15	88	5	15	10	374
F	9	4	.....	17	.....	1	.....	31
G	41	8	2	5	.....	.....	6	62
H	.....	.....	.....	3	.....	.....	.....	3
I	26	5	5	9	1	3	3	52
J	28	5	3	5	1	4	2	48
K	1	.....	.....	1	.....	.....	.....	2
Total	290	114	34	146	7	29	21	641

Sheltered Employment

The department continued to operate workshops in Toronto, Hamilton, Kingston and London. Unfortunately in the early part of the year the main workshop in Toronto was totally destroyed by fire and the number of men to whom sheltered employment could be given was reduced. New quarters have since been obtained which should provide sufficient accommodation to meet present needs.

Negotiations have been carried on with the Red Cross Society and arrangements were made for that organization to operate workshops for the purpose of giving sheltered employment to disabled ex-service men in Victoria, Vancouver, Montreal and St. John. It is hoped that arrangements will shortly be completed for workshops in Winnipeg and Halifax under the same auspices.

RECORDS DIVISION

Functions of the Records Division

The policy of centralizing the various records of the department under the one division has been continued throughout the year. The work of the Records Division is now divided into the following five sections:—

(1) *Daily Order Section.*—Responsible that the units issue Daily Orders in accordance with procedure which involves the checking of their authorization of treatment, pay and allowances with the documentation on Head Office files. This section also maintains individual records of treatment, training, employment, P.C. 2328, and Workmen's Compensation cases.

(2) *Statistical and General Section.*—Collection and checking of returns and the preparation of statistics concerning treatment, training, employment, pensions, relief, orthopædic and surgical appliances, P.C. 2328, curative training and various consolidated returns.

(3) *Pensions Sections.*—The maintaining of an individual record of all pensioners.

(4) *Orthopædic and Surgical Appliances Section.*—The maintaining of an individual record of all orthopædic and surgical appliances issued.

(5) *Transportation Section.*—Control of the issue and payment of all transportation granted within the department.

STAFF

At the beginning of the year, the staff numbered 73, whereas now it is 59, although the staff of the B.P.C. Statistical Section (seven) and the Transportation Section (six) were taken over during this time, so that a net reduction of staff of 27 has taken place.

In addition to this, ten female clerks have been replaced by dependent ex-soldier clerks who were appointed or promoted in accordance with the policy of the department to replace female clerks by ex-soldiers.

In planning and supervising the records and statistical work of the division, three principles have been kept in mind. The first is to maintain adequate and reliable records and statistics which are necessary as an immediate source of reference not only in checking up routine detail, but also as a guide in determining policies. The second is to review regularly the records and to analyze the various statistical returns as a means of keeping a constant check for purposes of administrative control and in determining tendencies. The third is to organize the records so that they may be kept as a permanent source of reference.

1. Daily Order Section

This section is responsible for the supervision and checking of Daily Orders issued by the Unit Directors of Administration.

During the year, revised instructions were issued so that Daily Orders are not only used as a record of all treatment and P.C. 2328 cases, but for the authorization of pay and allowances for such cases. From them, an individual record is maintained and checked against the Head Office documentation. This cross-checking has continued to be most helpful in checking the accuracy of information submitted to Head Office.

In addition, this section keeps the training and unemployment records. Also, all persons having received overpayments or for whom unclaimed balances are being held are recorded so that if they come on the strength of the department, action can be taken concerning them. Many of these cases have been cleared up in this way.

2. Statistical and General Section

The regular statistical returns have been compiled in the same manner as in previous years with some few changes as follows:—

During the year, the Statistical Section of the B.P.C. was absorbed by the division and the method of keeping their statistics in ledgers was discontinued. A report of clinical treatments and pension examinations is now received regularly through Daily Orders. As the various provinces take over the employment of handicapped ex-soldiers the form of the report is being changed, which will lessen this work slightly. The general Index Records were extended to include a cross-reference to pensioners.

In addition to the regular work, various reports were furnished: (*a*) for the information of the Royal Commission and Parliamentary Committee, (*b*) on tuberculosis cases for the conference of tuberculosis specialists held in Ottawa during the year, (*c*) to the various heads of branches.

Employment Relief to Pensioners and Vocational Students

Relief.—The policy of issuing unemployment relief to necessitous cases has been continued under P.C. 75 and P.C. 911.

The following statements give the particulars covering relief for the past year:—

From the beginning of January, 1922, to March 31, 1922, relief in the various units was granted as follows:—

Unit	Amount of Relief
A	$ 232,047 70
B	36,162 03
C	41,309 89
D	429,803 14
F	40,926 72
G	83,977 86
H	29,082 90
I	60,799 37
J	126,971 34
K	27,257 86
Total	$ 1,108,338 81

Relief has been carried on in a modified form throughout the year, the amount granted from April to December 31 throughout the units being as follows:—

Unit	Amount of Relief
A	$ 102,826 20
B	36,551 66
C	19,718 18
D	229,502 33
F	11,137 42
G	38,429 15
H	10,264 70
I	27,663 36
J	65,507 00
K	15,934 09
Total	$ 557,534 09

The number of men who received relief, period January 1, 1921, to December 31, 1922, were divided as follows:—

	Total	
	Number	Per cent
Single	7,442	32·44
Married	15,134	65·97
Widowers	365	1·59
Total	22,941	100·00

Relief granted in the various units during the year 1922 was as follows:—

Unit	Amount of Relief
	$ cts.
A	334,873 90
B	72,713 69
C	61,028 07
D	659,305 47
F	52,064 14
G	122,407 01
H	39,347 60
I	88,462 73
J	192,478 34
K	43,191 95
Total	1,665,872 90

The number of dependents supported by the 22,941 men assisted was 41,285, made up as follows to December 31, 1922:—

	Total	
	Number	Per cent
Men with no dependents	7,632	33·27
" 1 dependent	4,107	17·90
" 2 dependents	4,151	18·10
" 3 "	3,100	13·51
" 4 "	1,880	8·20
" 5 "	1,044	4·55
" 6 "	574	2·50
" 7 "	279	1·22
" 8 "	127	0·55
" 9 "	47	0·20
Total number of men	22,941	100·00
Number of men with dependents	15,309	.....
Number of dependents	41,285	.....
Average number of dependents	2·7	.....

DISTRIBUTION OF RELIEF

	Period, Jan. to Dec. 1921, inclusive		Period, Jan. to Dec. 1922, inclusive		Total	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
	$ cts.		$ cts.		$ cts.	
Food	928,475 85	61·48	938,157 70	56·32	1,866,633 55	58·78
Fuel	144,981 77	9·60	182,180 27	10·94	327,162 04	10·30
Rent	263,735 88	17·46	351,196 92	21·08	614,932 80	19·37
Food and fuel	8,258 01	0·55	.....	.....	8,258 01	0·26
Food and rent	158,372 00	10·49	192,085 90	11·53	350,457 90	11·03
Fuel and rent	1,105 18	0·07	.....	.....	1,105 18	0·03
Food, fuel and rent	2,264 23	0·15	.....	.....	2,264 23	0·07
Miscellaneous supplies	2,821 69	0·19	2,252 11	0·13	5,073 80	0·16
Transportation	149 35	0·01	.....	.....	149 35	
Total	1,510,163 96	100·00	1,665,872 90	100·00	3,176,036 86	100·00

RELIEF AS ISSUED BY WEEKS DURING 1922

	Men	Amount
1922		$ cts.
1st week—January 7	4,970	66,820 38
2nd " " 14	6,037	74,644 68
3rd " " 21	6,435	73,296 87
4th " " 28	6,545	71,292 27
5th week—February 4	7,152	89,917 49
6th " " 11	7,899	103,007 51
7th " " 18	7,905	97,113 80
8th " " 25	7,232	87,537 77
9th week—March 4	7,588	105,593 76
10th " " 11	7,498	102,344 44
11th " " 18	7,473	90,218 27
12th " " 25	7,044	83,138 99
13th week—April 1	5 828	62,358 65
14th " " 8	7,252	109,925 63
15th " " 15	6,349	78,070 57
16th " " 22	6,221	72,779 81
17th " " 29	5,419	59,965 86
18th week—May 6	1,951	27,213 58
19th " " 13	1,960	24,210 97
20th " " 20	1,815	19,372 85
21st " " 27	1,566	16,623 99
22nd " " 31	495	4,714 10
23rd week—June 10	552	7,578 76
24th " " 17	399	4,336 56
25th " " 24	416	4,203 51
26th week—July 1	338	3,223 07
27th " " 8	483	6,790 98
28th " " 15	384	4,098 62
29th " " 22	381	3,808 57
30th " " 29	344	3,258 60
31st week—August 5	381	5,396 04
32nd " " 12	336	3,660 30
33rd " " 19	325	3,247 26
34th " " 26	289	2,964 37
35th week—September 2	270	3,112 49
36th " " 9	273	3,606 35
37th " " 16	273	2,793 70
38th " " 23	272	2,757 89
39th " " 30	228	2,390 26
40th week—October 7	318	4,765 88
41st " " 14	291	3,097 69
42nd " " 21	302	2,914 13
43rd " " 28	305	3,132 25
44th week—November 4	365	5,144 98
45th " " 11	340	3,725 82
46th " " 18	430	4,159 72
47th " " 25	462	4,720 81
48th week—December 2	530	6,252 65
49th " " 9	679	8,213 06
50th " " 16	861	9,224 37
51st " " 23	1,191	12,223 52
52nd " " 30	986	9,413 27
Adjustments	22	1,495 18
Total number of times men granted relief	135,660	1,665,872 90

	1921 Relief	1922 Relief
Average amount to each certificate	7 87	7 05
Amount granted to men without dependents	287,445 18	313,427 16
Amount granted to men with dependents	1,222,718 78	1,352,445 74

3. Pensions Section

The creation of an individual record of all pensioners which is also used as a basis for all pensions statistics was completed during the year. This record has been built up from the original documents on file, and in order to ensure its accuracy and completeness, a thorough check with the Pensions Audit cards was made, with good results. From it, an individual statistical card has been punched and all changes concerning pensioners are kept up to date. Consequently, statistical information of pensioners is readily available in considerably more detail than heretofore.

These records also have already been very useful in checking up overdue pension examinations, reviewing the issues of orthopædic and surgical appliances, advising the Department of Militia *re* attributability of death to service, as well as a source of individual reference.

4. Orthopædic and Surgical Appliances Section

Recently, the records of approximately 30,000 patients who have received orthopædic and surgical appliances to date were transferred from Toronto to Head Office, Records Division, where the record of all current issues will be recorded.

Commencing with the month of January, the monthly report of orthopædic and surgical appliances issued was first submitted to Head Office, Records Division, in a revised form. This return gives the number of arms, legs, boots, minor orthopædic appliances and arm-chairs which have been purchased, manufactured, repaired and delivered at each unit during the month.

TRANSPORTATION SECTION

The Transportation Section, organized in April, 1919, was transferred to the Records Division in October, 1922.

Passenger Transportation

During the year 44,050 passenger transportation warrants have been issued. The transportation companies have presented accounts supported by the original copies of the used warrants, which after checking, etc., have been paid, involving an expenditure of $201,744.22, distributed as follows:—

Canadian National Railways	$124,152 33
Canadian Pacific Railway	60,023 35
Sundry Railways	17,568 54
	$201,744 22

The distribution of this expenditure by provinces and services is shown in the accompanying statement:—

STATEMENT SHOWING DISTRIBUTION OF EXPENDITURE ON TRANSPORTATION FROM JANUARY 1, 1922-DECEMBER 31, 1922

Service	Total expenditure	"A" Quebec	"B" Nova Scotia and Prince Edward Island	"C" Eastern Ontario	"D" Central Ontario	"F" Western Ontario	"G" Thunder Bay and Manitoba	"H" Saskatchewan	"I" Alberta	"J" British Columbia	"K" New Brunswick	"U" United States	H.O. Ottawa (Dept.)
	$	$	$	$	$	$	$	$	$	$	$	$	$
1. Officers and staff performing administrative duties or travelling in connection therewith, and Accounts and Audit Branch Staff	31,020 43	2,082 07	2,111 11	1,173 92	3,442 10	1,436 52	857 37	1,703 54	2,842 12	1,560 74	2,968 24	.....	10,842 70
2. Medical officers, nurses and personnel	13,628 35	2,218 63	1,032 29	531 49	1,921 95	907 33	470 13	542 36	1,516 50	1,160 07	589 94	.....	2,737 66
3. Men undergoing treatment or called in for treatment or orthopaedic re-pairs	79,476 33	7,430 28	11,374 17	3,031 29	12,916 00	6,157 55	9,086 58	6,266 57	7,674 99	8,925 21	4,765 08	1,728 61	120 00
4. Warrants issued to individuals proceeding on escort duty under instructions of the department other than escorts to deceased patients	11,846 86	1,475 19	1,376 31	559 23	1,530 94	696 77	521 08	1,417 97	1,484 04	1,824 37	876 39	84 57	.....
5. Transportation of deceased patients when shipped for burial and transportation of any person accompanying the body	364 04	52 24	34 51	29 01	181 65	....	28 95	15 63	22 05	.....	.....	.....	.....
6. Travelling Medical Board	2,984 45	131 23	405 66	11 76	147 83	248 53	268 05	328 55	452 34	865 99	124 51	.....	.....
7. Pensioners called in for examination	57,899 52	1,989 18	4,628 33	2,427 91	7,810 59	2,631 58	9,956 46	11,161 04	6,998 65	6,440 12	3,852 66	.....	.....
8. Men taking vocational training or travelling in connection therewith	2,504 64	172 90	266 23	313 91	290 14	46 77	82 84	133 72	178 15	308 88	52 24	658 86	.....
9. Transportation issued in lieu of unemployment relief	425 71	27 30	74 16	139 59	104 72	....	71 57	.....	.....	.....	8 37	.....	.....
10. Staff O. and S. A. Branch	1,277 80	46 23	....	54 55	928 33	8 40	61 62	.....	115 35	41 30	19 02	.....	.....
11. Transportation issued in connection with the Royal Commission	316 09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	316 09
Total	201,744 22	15,625 25	21,302 77	8,272 66	29,274 25	12,133 45	21,407 65	21,572 38	21,284 19	21,126 68	13,256 45	2,472 04	14,016 45

The undermentioned amounts have been expended for transportation of soldiers and pensioners of various Allied Governments and other Government departments. These charges have now been recovered or are being collected from the following:—

Government	$ cts.	Department	$ cts.
Newfoundland	1,377 77	Disablement Fund	276 75
Australian	42 35	Department of Mines	107 29
New Zealand	5 16	Department of Justice	135 60
Imperial	9,379 29	Department of Interior	98 60
American	853 82	British Board of Trade	31 47
French	321 59	Royal Canadian Mounted Police	34 54
Belgium	1 17	Department of Militin and Defence	167 82
Newfoundland pensions	268 37		
Australian pensions	72 60		$ 852 07
South Africa Pensions	3 48	Forward	19,057 54
New Zealand pensions	3 24		
Imperial pensions	6,728 70		
	$ 19,057 54	Total	$ 19,909 61

Freight and Express Warrants

During the year, 5,250 freight and express warrants were issued.

The total charges on freight and express warrants paid during the past year were $44,075.32, distributed as follows:—

Canadian National railways	$ 8,394 11
Canadian Pacific railways	2,647 36
Grand Trunk railway	2,091 20
Canadian National express	15,330 87
Dominion express	15,016 03
Sundries	595 75
Total	$ 44,075 32

Each item on these freight and express warrants was classified and the rates checked according to the official freight and express tariffs.

The expenditure of all units for freight and express during the year was distributed as follows:—

Unit	Province	Amount
		$ cts.
A	Quebec	11,578 99
B	Nova Scotia and Prince Edward Island	1,330 71
C	Eastern Ontario	883 54
D	Central Ontario	8,631 81
F	Western Ontario	1,635 08
G	Manitoba	2,646 09
H	Saskatchewan	1,075 04
I	Alberta	5,987 50
J	British Columbia	2,781 32
K	New Brunswick	2,217 10
U	United States	112 98
H.O	Ottawa (whole department)	5,195 16
	Total	$ 44,075 32

Half-Fare Certificates Form No. 163.

Half-fare Certificates were obtained by the Units direct from the Canadian Passenger Association, Montreal, during the year. The duplicate copies of these were forwarded to Head Office on an appropriate return at the end of each month.

STORES DIVISION

Equipment

Inventories of all equipment were taken as on March 31, 1922, and checked with the equipment ledger records. The maintenance of the inventory boards in each room where equipment was on charge facilitated the taking of these inventories.

A record of all equipment on charge in the units has been recorded on the equipment ledgers and maintained by the Accounts Division in each unit. By installing a system of making issues from stores on replacement and making a charge against maintenance and repair at the institution receiving the replacement, it has been possible to decrease considerably the number of entries formerly made in the equipment ledgers. A monthly summary of the entries made in the equipment ledgers is forwarded to Head Office for review.

The regular monthly boards of condemnation have been held on all worn out equipment before such equipment was discarded. The equipment on charge at each hospital has been checked against the Standard Table of Equipment and, where possible, the amount of equipment brought down to a quantity in keeping with the number of patients and staff at the institution.

Stores.—The stock carried in stores has been reduced to quantities only sufficient to meet the services required in the units.

Requisitions for supplies and equipment that are standard for all institutions are required from the units at stated intervals. In this way a consolidated requisition has been built up at Head Office and a large amount of clerical work that was formerly necessary at irregular intervals for each hospital, has been overcome.

By reference to the Purchasing and Sales Division, advantage has been taken of the market prices of standard supplies and equipment. On account of the fluctuation in the number of hospitals operated by the department, it was previously impossible to take full advantage of this service.

Inventories of all stores were taken periodically and supplies in excess of requirements at any one institution were transferred to another institution where they could be advantageously used.

Disposal.—The equipment that was found to be no longer required was appraised by a board consisting of three responsible officials in the units, and if not required for future use in another unit, it was passed to the Purchasing and Sales Division for disposal.

Commissary Supplies.—All storage conditions were reviewed and all commissary supplies were inspected each month and the quantity of stock in stores kept to an amount that could be turned over at least once every three months. In this way the stock was always kept fresh and no trouble has been experienced in canned goods becoming unfit for consumption through storage.

Printing and Stationery.—Full advantage was taken of the Multigraph Section to print all simple forms required in the department. All complicated or multi-covered forms were supplied through the Government Printing Bureau.

The stock of stationery has been materially reduced by adopting this procedure and the inconvenience of having obsolete forms on hand has been overcome. Formerly, on account of the curtailment of the activities of the department, it was very difficult to arrive at the correct quantity of forms that should be printed at one time.

The amount of equipment on hand as on December 31, 1922, is as follows:—

General equipment	$ 1,833,088 52	
Medical equipment	218,147 88	
Dental equipment	32,122 07	
Training and ward occupation	49,634 20	
		$ 2,132,992 67

The amount of stores on hand as on December 31, 1922, is as follows:—

General stores	$ 419,532 65	
Surplus stores	63,725 14	
O. and S.A. stores	143,2 9 70	
Medical and Dental	40,179 52	
		$ 666,677 01
Stores and equipment on hand		$ 2,799,669 68
Value of surplus stores disposed of 1922	$ 535,132 79	
Value of surplus stores transferred within the depnrtment 1922	36,006 39	
		$ 571,139 18
Value of supplies and equipment issued 1922		2,013,567 57
Total value of stores issued 1922		$ 2,584,706 75

MIMEOGRAPH AND TYPISTS' SECTION

The work in this Section mainly consists of:—

1. Stencilling and Mimeographing Circular Letters, Regulations and Instructions, Form Letters, Directories, Reports and simple Forms for inter-departmental use, limited in quantity and subject to change; also duplicating of Agreements, Orders-in-Council and such work as is less expensive done in this manner.

2. Specialized copy work, including tabulated statements, and general routine copy work.

3. This Section is responsible for the despatching of all Circular Letters and Regulations and Instructions, to Head Office and Unit Officials; a mailing list of some three hundred names being kept up to date therefor.

Following is a statement of operations in the main sections for the past year:—

MIMEOGRAPH SECTION

Stencils	Runs
2962	1,070,362

COPY WORK SECTION

Pages	Copies
35,699	65,507
Circulnr letters despatched	139
Amendments	757

PURCHASING AND SALES DIVISION

Purchasing Section

The purchasing of supplies and equipment, awarding of contracts for food supplies, laundry, funerals, etc., for all branches of the department, is done by the Chief Purchasing Agent, or under his direction by the unit purchasing agents. The duties of the purchasing agents also include the securing and checking of invoices covering purchases made and the passing of them to the accountants for payment.

The method adopted of calling for tenders, which is approved by the Purchasing Commission of Canada, provides for tender forms, including specifications of goods required, being forwarded to all manufacturers and wholesalers. Sealed tenders received by the department are opened in the office of the Chief Purchasing Agent in the presence of a representative of the Purchasing Commission of Canada, when the tenders are stamped, initialled, and prices scheduled for comparison. The prices, and samples (if necessary), are then examined by the Chief Purchasing Agent and contracts awarded.

Requirements of the department in the units are purchased by the unit purchasing agents on requisitions approved by the Unit Director of Administration, provided any one purchase (other than purchase of food supplies) does not exceed the sum of $50 and copies of all such orders are mailed as issued to the Chief Purchasing Agent, Ottawa, for scrutiny. Regulations provide for requisitions exceeding this value to be submitted to the Chief Purchasing Agent, Ottawa, who either makes the purchase himself or authorizes the unit purchasing agent to do so, as the circumstances may warrant.

By this system, not only has quick and efficient service been given to all branches of the department, but all purchases exceeding the sum of $50 are specially dealt with under the personal supervision of the Chief Purchasing Agent, who by this system is also kept continually informed of all purchases for smaller sums than this made for the department throughout the Dominion. This control of purchases by the Chief Purchasing Agent enables the department to secure a uniformity of supplies throughout the country and it has made possible the standardization of a great part of the equipment and has enabled the department to purchase in larger quantities, thereby securing the goods at the lowest possible cost.

Special efforts have been made during the year to secure all possible cash discounts. Which have resulted in a saving being effected of over $5,500. This has only been made possible through the efficient accounting and checking system of the department which enables accounts to be handled and paid promptly.

The total purchases for the year, which include equipment, stores, drugs, fuel and food supplies, amout to $1,478,391.58.

The amount of surplus equipment which was listed for disposal during the year ended December 31, 1922, was necessarily very much less than the amount listed during the previous year. Since January 1, 1922, goods of the value undernoted have been placed on Disposal in the various units:—

Head office	$ 16,869 69
Unit—	
A, Montreal	35,551 78
B, Halifax	32,235 84
C, Ottawa	19,343,66
D, Toronto	115,487 08
F, London	17,044 50
G, Winnipeg	16,619 94
H, Regina	11,040 11
I, Calgary	51,507 66
J, Vancouver	40,151 37
K, St. John	6,181 10
Total	$ 362,032 73

As in the past, the policy of transferring goods to other Government departments as authorized by P.C. No. 3017, dated December 13, 1920, has been continued in preference to selling goods for cash and as a consequence many of the other departments have greatly benefited thereby. In this connection special mention may be made of the Department of Justice (Penitentiaries Branch), Department of Railways and Canals (Canadian National Railways), Department of Indian Affairs, Department of Mines and the Department of Militia and Defence, all of which have specially acknowledged the great saving they have effected in cash expenditure owing to their having obtained goods for which they were in urgent need by transfer from this department. Transfers have been made to Government departments as follows:—

Department	12 months to Dec. 31, 1922	Total value of goods transferred
	$ cts.	$ cts.
Agriculture	2,909 46	31,275 49
Air Board	5,604 09	159,579 21
Customs and Inland Revenue	703 80	1,418 80
Finance	3,019 97	5,199 00
Health	396 29	2,614 47
Immigration and Colonization	646 12	27,798 65
Indian Affairs	102,365 75	289,476 23
Interior	32,949 00	103,725 99
Justice	225,924 77	430,091 21
Militia and Defence	10,797 65	165,544 80
Mines	25,506 58	124,478 56
Naval Service	5,132 93	18,465 64
Public Works	31,040 54	84,107 64
Printing and Stationery	12,572 43	125,311 23
Railways and Canals	33,604 75	58,681 77
Royal Canadian Mounted Police	5,520 26	16,555 29
Labour		700 00
Marine and Fisheries	830 47	1,371 13
Post Office	1,640 24	1,856 24
Miscellaneous departments	2,035 18	2,270 20
Total	$ 503,200 28	$ 1,650,521 55

The total of the sales and transfers during the past twelve months amounted to $550,351.64, of which, as noted above, $503,200.28 represents the value of goods transferred to other Government departments, representing over 80 per cent of the total. The balance represents the cost value of goods sold for cash or disposed of other than by way of transfer.

The amount credited to the Received General of Canada during the past year from cash sales was $31,932.51.

ENGINEERING DIVISION

The Engineering Division is responsible, through the Director of Administration, for the maintenance and repairs to institutions and offices, fuel supply, fire protection, rentals, taxes and water rates, mechanical transport, laundries and farm and gardens.

Maintenance and Repairs

Estimated less expenditure for 1922	$ 74,318 50
Expended during said period	63,026 23
Major repairs are referred to the Department of Public Works.	
Estimated expenditure of Dept. of Public Works during said period	92,490 00

Expenditure during said period not available at present, but expenditure well within the estimate.

Fuel Supply

The arrangement instituted for 1921-22, in reference to fuel purchases has worked out quite satisfactorily to the Department.

Specifications for the purchase of fuel provides for the acceptance of competitive tenders, based on heating value and ash contents.

Each tenderer being required to submit with his quotation an analysis of the coal he proposes to supply, and provision is made for the payment of bonuses, or the enforcement of penalties as the coal supplied exceeds or falls below the standard submitted.

Coal purchased for fiscal year 1921-22, 36,641 tons.
Bonuses paid, $197.68.
Penalties imposed, $4,217.71.
Net cost of fuel, $265,824.65.
Average cost per ton delivered at siding or bunkers, $7.25.

Hauling and bunker charges cost on average approximately .80 cents per ton, covering the institutions where coal had to be hauled from siding to stock pile, or bunkers, or from stock pile to bunkers.

In the case of Jordan Memorial Sanatorium, Riverglade, N.B., coal had to be hauled 6½ miles.

Fire Protection

Careful inspection is made at all times to see that fire fighting appliances are in the best possible condition.

Fire Drill Regulations have been prepared and drills instituted at each institution.

Rentals

Rentals in force January 1, 1922	$ 194,987 93
New leases during the year	16,705 53
	211,693 46
Value of leases of premises vacated	98,950 91
Rentals in force December 31, 1922	$ 112,742 55

The following statement indicates the rentals according to Units:—

DETAIL OF RENTAL AND LEASES EXPERIENCE FROM JANUARY 1, 1922 TO DECEMBER 31, 1922

Unit	Rent in force at Jan. 1, 1922	Rent vacated during year 1922	Rent in force at Dec. 31, 1922	New leases consummated during year 1922 and increase in rentals	Number of leases in force at Jan 1, 1922	Number of leases disposed of during 1922	Number of leases in force Dec. 31, 1922
	$ cts.	$ cts.	$ cts.	$ cts.			
A	16,450 75	None	16,450 75	None	2	None	2
B	1,320 00	600 00	1,320 00	600 00	1	2	1
H.O	45,768 03	41,045 70	7,469 55	2,747 25	2	None	3
C	6,823 50	None	6,823 53		3	None	3
D	24,997 67	13,820 00	11,489 25	311 58	15	9	6
E	744 00	Nil	744 00	Nil	1	Nil	1
F	5,520 00	1,200 00	5,220 00	900 00	3	1	3
G	22,176 00	4,680 00	17,616 00	120 00	4	1	3
H	8,131 70	144 00	7,987 70	Nil	3	Nil	3
I	43,902 00	29,265 21	21,303 49	9,666 70	11	3	8
J	19,154 28	8,196 00	13,318 28	2,360 00	10	7	6
	194,987 93	98,950 91	112,742 55	16,705 53	55	23	39

Mechanical Transport

Comparative Report on operation and service for the year 1922:—

Services—	
No. cars in operation Jan. 1, 1922	60
" " Dec. 31, 1922	30
Total number hours employed	65,451
Average per day per vehicle	5·28
Total number hours in repair shop	8,627
Operation and Maintenance—	
Cost gas, oil and grease	$ 13,593 61
Drivers' wages	44,672 92
Cost of repairs, etc	14,647 94
Cost of new tires	3,588 00
Total cost	$ 76,502 47
Average cost per hour service	1 17
Taxi hire	9,944 35
Trucking	3,739·35

Laundry Operations

The Department has operated laundries at the following hospitals: Ste. Anne's Hospital, Jordan Memorial Sanatorium, Christie Street Hospital, Westminster Hospital, Stratheona Hospital.

In order to operate full time, arrangements were made to ship laundry from other departmental institutions, if within reasonable express distance.

The number of pieces laundered in above laundries: for year 1922, 1,796,013 pieces at an average cost per piece of 2·9 cents; for 1921, 1,880,767 pieces at an average cost of 3·2 cents per piece.

Where the above services were not available to certain of the departmental institutions, contracts were entered into with the city laundries.

During the above period, number of pieces, 724,799, at an average cost per piece of 4·9 cents.

Same period last year, number of pieces, 713,030, at an average cost per piece of 5·3 cents.

Farm and Garden Operations

With the exception of the farm at Jordan Memorial Sanatorium, which was operated to supply the sanatorium, due to its isolated location, garden operations have been confined principally to such as can be carried on by the patients under the direction of a gardener.

The produce grown has been disposed of to the institutions at current market prices.

JORDAN FARM OPERATIONS FOR THE YEAR 1922

	Expenses	Receipts
	$ cts.	$ cts.
Horses	4,285 66	5,752 37
Cattle	1,797 28	1,807 50
Swine	153 00	681 41
Poultry	5 70	114 85
Crops	1,246 16	170 38
Farm superintendent	1,110 00	
Total	$ 8,597 80	$ 8,526 51

Note.—Farm labour included under stock expenses.

CENTRAL REGISTRY

During the year 1922 the combining of B.P.C. files with S.C.R. files was completed. The files for Imperial Pensioners were also combined with S.C.R. files during August and September.

That this combining of files has resulted in a substantial economy is shown by the fact that while the amount of correspondence received and files issued in November and December, 1922, is only slightly under that during the same two months in 1921 the staff has been reduced from 210 in 1921 to 114 in 1922.

At present new improved folders are being created for all files and a very complete checking of files and folders is being made in the cabinets with a view to greater speed and accuracy. When this is completed in March, 1923, a further reduction of staff of about 20 is anticipated.

The following details of correspondence and files issued does not include the other activities of Central Registry such as indexing lists, changes of address, transfer of district office files, subject files, etc.

MAIL

Incoming correspondence (total pieces)	971,139
Average per week	18,675
Outgoing correspondence (total pieces)	964,810
Average per week	18,554

FILES

Issued—total	577,742
Average per week	11,110
Recharged—passed from branch to branch	315,925
Average per week	6,075

TELEGRAMS

Incoming—total	8,547
Average per week	164
Outgoing—total	3,645
Average per week	70

STAFF

January 1922—Including Imperial Section	210
December, 1922	114

IMPERIAL SECTION

By Order in Council P.C. 4500, dated December 1, 1921, the Officer Paying Imperial Pensions and his staff were transferred to the Department of Soldiers' Civil Re-establishment. This organization had its origin when, in the year 1906 the British Garrisons were removed from Canada and arrangements were entered into between the British War Office and the Department of Militia and Defence whereby the latter agreed to take over the work of paying pensions and reservists in Canada. This work had previously been carried out by the British Paymaster at Halifax.

After a time, during which the arrangements referred to above were being tried out, on the 5th of May, 1908, by Order in Council P.C. 876, the Canadian Government ratified the agreement and appointed a board under whose jurisdiction the work should be carried out. This board consisted of the Deputy Postmaster General and the Deputy Minister of Militia and Defence, assisted by the Accountant and the Paymaster General of the Department of Militia and Defence, and the Accountant of the Post Office Department. The services of an Army Pay Officer were secured and he was appointed "Officer Paying Imperial Pensions" with instructions to secure a staff and carry out the necessary work.

At that time, and until the outbreak of the Great War, the sole duties of the Officer Paying Imperial Pensions consisted of making payments authorized in England in respect of pensioners and reservists and paymasters' advances. The agreement ratified by Order in Council 876 was based on an Imperial Treasury Minute, dated January 23, 1873, which provided a commission of three per cent (3 per cent) on disbursements made under its terms.

The Order in Council provided that, as all expenditures in connection with this work were borne by British funds, accounts be kept separate and distinct from the Canadian public account and all statements of accounts, vouchers, etc., be transmitted to the British Government through the Canadian Post Office Department.

The arrangements referred to above continued through the years to be satisfactory and the amount realized as commission was sufficient to pay salaries and other expenses in connection with the work.

With the outbreak of the Great War, the Officer Paying Imperial Pensions was instrumental in assisting the British War Office by taking part in the mobilization of Imperial reservists in Canada, dealing with transportation, pay, subsistence, etc. Mobilization further involved the opening of a great number of allotment pay accounts, as well as separation allowance.

With the commencement of the return of disabled soldiers from overseas, the duties of the Officer Paying Imperial Pensions became more complicated. Pensions which had hitherto been of a more or less permanent nature were now in awards of short duration, varying in length from thirteen weeks to a year.

From the earlier stages and continuing until the latter part of 1919 medical reports required by the Imperial authorities in connection with the reassessment of pensions were requested from the Officer Paying Imperial Pensions, who in turn asked the Department of Militia and Defence to carry out these examinations. The proceedings of Medical Boards received by the Officer Paying Imperial Pensions were by him transferred to the Imperial authorities interested to form the basis for new awards, which in turn were forwarded to the Officer Paying Imperial Pensions for payment.

In the summer of 1919 the Department of Soldiers' Civil Re-establishment acting on behalf of the Canadian Government negiotiated, with the Imperial Government an arrangement which widely extended the scope of the activities of the Imperial Pension Office. This agreement which formed a part of the report of the department for the year 1919 provided, amongst other things, that pre-war residents of Canada who had served in the Imperial Forces and who were disabled and returned to Canada, should have given them the same treatment and the same pensions and allowances as were granted by the Canadian Government to ex-members of the Canadian Expeditionary forces.

It further provided that the Board of Pension Commissioners acting on behalf of the Imperial Ministry of Pensions should carry out re-examinations and assess and pay pensions without reference to England, except that the awards were subject to confirmation, variation or rejection by the Ministry of Pensions, safeguards being provided in the fact that payments made up to the time of notification of variation or rejection on the part of the ministry, should be valid and accepted by them as a proper charge.

One effect of this arrangement was that by Order in Council P.C. 133, dated January, 1920, the Officer Paying Imperial Pensions and his staff and records were transferred from the Board previously referred to to the jurisdiction of the Board of Pension Commissioners for Canada, the Board of Pension Commissioners remaining in charge of the work from January 1, 1920, to December 1, 1921, at which date the Officer Paying Imperial Pensions and his staff were transferred to the Department of Soldiers' Civil Re-establishment.

To set forth the scope of the work at the time of transfer to the department, and as serving to show the growth during two years beginning January 1, 1920, to January 1, 1922, the following is appended:—

COMPARATIVE STATEMENT, IMPERIAL PENSION ACCOUNTS JANUARY 1, 1920 TO JANUARY 1, 1922

—	Number	Annual amount	
		$ cts.	£ s. d.
January 1, 1920—			
Widows and Dependents—			
Imperial rates in Canada	947		52,238 3 10
" " United States	Nil		
Canadian rates in Canada	55	34,668 00	
" " United States	Nil		
Disability pensions—			
Imperial rates, Canada	1,775		70,276 10 0
	2,777	34,668 00	122,514 13 10
January 1, 1922—			
Widows and dependents—			
Imperial rates in Canada	2,509		129,625 10 0
" " United States	1,115		49,352 2 4
Canadian " Canada	232	143,612 00	
" " United States	125	81,948 00	
Disability pensions—			
Imperial rates in Canada	4,424		140,504 2 4
" United States	2,589		81,821 0 9
Canadian " Canada	1,031	358,159 68	
" " United States	494	170,077 48	
Totals as at January 1, 1922	12,519	753,797 16	401,302 15 5
Increases over 1920	9,742	719,129 16	278,788 0 3

The above figures refer only to pensions granted to or in respect of soldiers under commissioned rank in the Great War. In addition to these the following accounts were under payment as at January 1, 1922.

Chelsea, service, etc	1,379
Officers and dependents	2,600
Naval Service	364
Army reserve	94
Pre-war disability	828
Canadian Supp. South Africa	65
Separation allowances	40
Miscellaneous pensioners, United States	89
Accounts under closure	307
Total	7,566

Thus when the branch was taken over by the department there was a total of 17,308 live accounts and the annual disbursements approximated $5,880,000.

Organization

The Imperial Section is composed of the following units:—

Executive,
Awards Division,
General Accounts and Officers' Pay,
Ledger Division (other ranks),
Correspondence Division,
Sub-Registry.

The Officer Paying Imperial Pensions is responsible to the Director of Administration for the operation of the section, and for the personnel engaged therein.

AWARDS DIVISION

This division (1) arranges for all medical examinations and re-examinations; (2) receives from the Director of Medical Services completed and signed medical reports stating whether the disability is pensionable and to what extent; (3) if pension is indicated assesses same in conformity with the British or Canadian regulations as the case may be.

In the progress of this work the following awards were made for the year 1922:—

Canadian (new awards)	137
Canadian renewal awards	1,561
Canadian final payments	62
Amended awards	579
No payment awards	1,308
Interim awards	1,314
Imperial awards	4,149
Total	9,110
Comparative rates, total	183

In addition to this the following medical examinations were arranged:—

	Canada	United States	
Officers	971	576	
Other ranks	4,801	2,217	
Total	5,772	2,793	8,565

The Awards Division carries out correspondence with pensioners and applicants for pension where the correctness of an award is called into question; where instructions regarding medical examination are to be conveyed, where documents or other evidence in support of claims to pension are required. In this connection about 100 letters are written each day. This division employs a personnel of 18.

GENERAL ACCOUNTS AND OFFICERS' PAY DIVISION

This division, carrying out two functions, is under the supervision of the Accountant. One part of the work deals with the direct payments to officers and dependents of deceased officers, as well as a considerable number of miscellaneous pensions including the Royal Irish Constabulary, Indian and British Civil Service pensions, etc.

In the accounting function, this division receives from the Ledger Section, other ranks (see below), a summary of charges against the ministry with the corresponding vouchers. These charges, together with charges for payments made through the Officers' Pay subdivision are then grouped into one complete account for each of the British departments for whom payments are made. This division deals with 3,011 accounts and employs a personnel of 13.

LEDGER SECTION (OTHER RANKS)

In this division are kept the ledger accounts of all pensioners below commissioned rank both soldiers and dependents. The division is for convenience in supervision further divided into three groups each under the superintendence of a senior clerk. This division is responsible for 14,756 accounts and employs a personnel of 32.

CORRESPONDENCE DIVISION

Correspondence Division deals with all correspondence originating from pensions and applicants included in the group immediately preceding. Four dictators are employed including one senior clerk who is in charge of the work. The average number of dictated items daily is 160.

SUB-REGISTRY

The duties of this group consist of the allocation of files and recording the interdivisional passage of files so that these may be located as desired. Employed in this work are three clerks and one office boy.

STATEMENT

Herewith is a statement showing the disbursements made by the Imperial Pension Section for the year 1922.

GENERAL STATEMENT OF DISBURSEMENTS MADE BY THE IMPERIAL PENSION OFFICE FROM JANUARY 1, 1922, TO DECEMBER 31, 1922

	London Account	Ottawa Account
	£ s. d.	$ cts.
Payments of retired pay, pension, etc., to officers and dependents of Air Ministry chargeable to War Office, Ministry of Pensions, Admiralty, Indian Office, Colonial Office, Royal Irish Constabulary, including miscellaneous payments of balances of service pay, etc., authorized by W.O., 3,011 accounts	235,158 0 3	
Treatment allowances at Imperial rates to officers	2,765 15 10	
Payments of pension to W.O's, N.C.O's and men and dependents chargeable to War Office, Ministry of Pensions, and Admiralty, 14,756 accounts	441,816 4 2	769,303 93
Payment of Chelsea pensions—chargeable to War Office	38,500 9 6	
Payment of Naval pensions—chargeable to Admiralty	17,846 14 10	
Payment of marriage allowances—chargeable to War Office	1,224 10 6	
Payment of Reserve pay—chargeable to War Office	1,078 5 1	
Payment of Service pay	16 16 0	
Payment of Decoration Awards in respect of members of C.E.F.—chargeable to War Office	1,288 12 10	
Payment to Department Militia and Defence in respect of transportation, etc		83,376 38
Canadian Supplementary pensions, officers and dependents—chargeable to Canadian Government		47,177 23
Canadian Supplementary pensions W.O's N.C.O's and men—chargeable to Canadian Government		17,665 46
Payment to Supervisor of expenditures in respect of treatment under maintenance, pay and allowances, subsistence and sundries, medical examinations, clothing and comforts, transportation—chargeable to Ministry and Pensions		784,383 54
Miscellaneous charges to W.O. Ministry of Pensions, Air Ministry and Admiralty		3,925 43
Sub. accounts, including express charges and postage		2,530 69
Commission paid out during 1922	22,502 18 10	27,226 75
Total	762,198 7 10	1,762,589 41

ORTHOPÆDIC AND SURGICAL APPLIANCES DIVISION

During the year under review considerable changes were made in the organization of the Orthopædic and Surgical Appliances Branch.

On April 1 the Orthopædic and Surgical Appliances Branch was brought under the control of the Administration Branch, becoming one of its Divisions. The Head Office of the Orthopædic and Surgical Appliances Branch, formerly in Toronto and controlled by a Director was transferred to Ottawa. The appointment of Director was discontinued, the work being carried on by the Director of Administration, assisted by the Chief of the Division. The orthopædic work at "D" Unit, Toronto, passed under the direct supervision of the Unit Director of Administration, "D" Unit, thus placing it on the same basis as the orthopædic work in all other units.

The main factory of the division which manufactures spare and standard parts for distribution to the units remains at Toronto and experimental and research work continues to be carried on there as formerly.

This reorganization resulted in closer co-operation between the work of the Orthopædic and Surgical Appliances Division and that of other divisions, under the Administration Branch, particularly in regard to stores and records.

The record of appliances issued by the division during the past year shows no marked change from that of the year preceding; the tendency, however, is downwards, decrease in most lines being evident. The records show a corresponding reduction in personnel, amounting to 11 per cent over the previous year.

The appliances as produced during the year have on the whole followed the main designs and standards previously adopted. In artificial legs, willow wood is retained as a basic material, it still being found to be the best medium for obtaining a fit with comfort to the wearer. However, during the summer a new development of much interest in the construction of artificial legs was brought out in England and was investigated personally by the Orthopædic Specialist of the department. This new model retains willow wood for the construction of the socket, but substitutes "Duralumin" in all other main parts. In order to make a practical test of this model, a standard A.K. willow wood leg was made up in the rough in Toronto and fitted to a patient. This unfinished leg was shipped to England to the makers of the new model, who agreed to convert same to one of their type by substituting the wooden parts for metal. Unfortunately at the time of writing, this limb has not been returned, so results must await later reports.

An important improvement has been introduced by the obtaining of a new design in the ankle joint brought out by the Experimental Section of the Division. The new design gains in durability without increasing the weight and overcomes the tendency of the old design to breakdown.

Last year a radical change in the manufacture of artificial arms was introduced and was actively followed up during the year under review. This change was in using hardened raw hide in the place of willow wood as a basic material. In the latter part of the year the experimental work resulted in sufficient success to enable the construction of this class of artificial arm to be taken up by the Production Section.

These arms are now in general issue and much satisfaction is being expressed by the arm amputation cases over the improvement of these arms in comparison with the old type.

The "below-elbow" work arm remains unchanged, but the "above-elbow" work arm (Canada Arm) has been considerably altered mechanically, chiefly by means of a new elbow joint and its weight reduced by the adoption of raw hide for the construction of this arm and though as yet it has only been given practical tests by a few cases, favourable reports have been received especially regarding its increased durability and the ease with which it is manipulated.

For men suffering from amputation near wrist, a raw hide arm was constructed so that the patient was able to transmit a rotary motion at the wrist to the artificial hand by a simple device, adding greatly to its usefulness and imparting to it a very realistic appearance. The "Bowler" hook for use in work arms was also considerably improved mechanically.

In minor appliances, several new ideas were adopted, spinal braces were improved, as also drop-foot splints and Pelvic belts. As usual it was necessary to design several special appliances for special occupations or disabilities—this was very successfully carried on during the past year by the Experimental Section.

Accounting Costs

The average cost for 1922 of all types of each appliances manufactured by the Orthopædic and Surgical Appliance Division is as follows:—

Artificial legs	$76 34
Artificial arms	56 27
Peg legs	35 15
Orthopaedic boots	20 80
Minor orthopaedic appliances	8 33

The drop in the cost of the manufacture of artificial legs is due mainly to the fact that less of the more expensive type of legs were required this year. Last year a new type of leg for disarticulation of the hip was brought out and such cases were supplied with this model, which increased the average figure for 1921.

A very substantial decrease has taken place in the cost of the manufacture of artificial arms. A saving in labour and material resulted by the adoption of the new type of arm which is made out of raw hide, and of more simple construction.

The cost of peg legs show an increase of 13 per cent. Peg legs as supplied at present are very rarely issued as a temporary measure only, but for occupational or recreational purposes and consequently these are constructed with a view to durability, comfort and exact fit, more than formerly.

The average cost of minor orthopædic appliances which include those purchased as well as manufactured, shows a substantial decrease over the cost of the previous year. This decrease is the natural result of the fact that as time goes on the more expensive and more lasting appliances are issued less and less frequently, whereas the cheaper articles which require constant renewal continued to be issued more steadily which results in a decrease in the average cost.

ORTHOPÆDIC AND SURGICAL APPLIANCES DIVISION, ADMINISTRATION BRANCH ANNUAL REPORT, 1922

Type of Appliance	Delivered prior to 1922				Delivered during 1922				Total
	Dominion of Canada	Workmen's Compensation Boards of Canada	London, England	United States of America	Dominion of Canada	Workmen's Compensation Boards of Canada	London, England	United States of America	
Legs (all types)	6,096	9	210	43	568	33	94	21	7,074
Arms (all types)	2,112	23	26	4	103	33	5	3	2,309
Orthopaedic boots	20,387	4	172	47	6,503½	3	134	24	27,294½
Peg legs	1,257	5	5	.....	66	14	2	.....	1,349
Optical supplies	15,991	2	32	14	2,090	12	17	25	18,183
Minor orthopaedic appliances	34,382	94	894	130	18,352	212	926	75	55,065
Repairs to legs	17,229	.....	340	6	6,626	26	315	19	24,561
Repairs to arms	1,936	.....	27	.....	547	12	7	7	2,536
Repairs to boots	20,540	.....	54	48	8,367½	1	68	21	29,099½
Repairs all other appliances	5,066	.....	153	2	2,248	.....	43	2	7,514
Total	124,996	137	1,913	294	45,471	346	1,631	197	174,985

ORTHOPÆDIC AND SURGICAL APPLIANCES DIVISION CONSOLIDATED OPERATION ACCOUNT TWELVE MONTHS ENDING DECEMBER 31, 1922.

DEBIT	$ cts.	$ cts.
Balance from previous year		230,099 14
Salaries	76,115 89	
Wages	196,439 81	
		272,555 70
STORES—Purchased		53,956 24
EXPENSES—		
Transportation and travelling	1,545 43	
Freight and express	4,437 86	
Rent, taxes, insurance, power, etc	8,419 51	
Telephone, telegraph, postage, car tickets and other miscellaneous items	12,608 75	
		27,011 55
Total		583,622 63
Balance of limb factory operation account		162,150 78
		162,150 78
Distribution of Production Costs—		
Labour	144,016 81	
Material	77,838 73	
Expense	118,240 87	
Total		340,096 41

CREDIT	$ cts.	$ cts.
Increases to Equipment Account		9,854 99
Transfers of stores and material to other units and branches		16,955 52
PRODUCTION—		
Arms	12,055 90	
Legs	61,702 41	
Boots	124,966 48	
Minor orthopaedic appliances	28,867 35	
Optical supplies	105,330 94	
Repairs	7,173 33	
		340,096 41
Direct deliveries to patients		19,930 65
Services rendered to other units and adjustments with H.O		34,634 28
Balance carried forward		162,150 78
Total		583,622 63
General Stores	144,676 30	
Deferred charges	1,971 28	
Labour in process	6,767 72	
Material in process	4,223 39	
Expense in process	4,512 09	
Total		162,150 78

NOTE.—The difference of $18,275.92 between the amount on charge to Limb Factory Operations at H.O. as recorded on Balance sheet ($180,426.70) and the balance on hand in the Units $162,150.78 is principally accounted for by values of production not having been reported in time to be entered in the books before closing on December 31, 1922.

SOLDIERS' COMFORTS BRANCH

The following is a brief review of the work accomplished by the Soldiers' Comforts Branch:—

The Comforts sent to Hospitals throughout Canada for ex-soldier patients (many of whom have been ill ever since their return from overseas) are of outstanding value and have materially increased in output.

The Upkeep of rooms in the hospitals for purposes of recreation and amusement, such as lounge, library, rest and billiard rooms, is a large part of work in itself and appears to be of vital importance to the health and happiness of the men.

The Supplying of all kind of musical instruments and the keeping of them in order from month to month, with the necessary additions to band and orchestra, while a specially large part of the whole is a much appreciated one.

The Distribution of athletic goods occurs according to the season, when they are fairly apportioned; each article is safeguarded and if broken, mended at once, unless it has been proved beyond repair.

The Gymnasium Equipment is also arranged for carefully in the same way as the athletic supplies.

The Weekly Amusements provided consist of drives; tickets for concerts; plenty of moving-pictures; the circulating library and book exchange adds much also to pleasure of the patients: regular ice-cream and food treats are also provided.

The Out-patients Comfort is another division of the work. No ex-soldier, ill in his own home, whose needs are officially placed before soldiers' comforts, is overlooked—the requirements for which are generally warm articles of wear; for summer, delicacies; cool garments and other supplies; porch or verandah furnishings and wheel-chairs.

The Emergency Work and the filling of regular and emergency requests has kept the workroom in a constant state of activity. On all the larger quantities of articles made, quotations are obtained and in each instance this has proved that better value at a less cost of production can be procured by filling requirements from the workroom rather than by purchasing the needed articles ready made from wholesale houses. In this connection, the work of such bodies as Red Cross Branches throughout Canada, Daughters of the Empire, Church Societies, Patriotic Associations, and the help of so many indivdual workers has been deeply appreciated.

The Staff in the Workshop continues to give quick and efficient service. Although the men engaged in this employment are disabled veterans, they are wonderfully expert in the various works (each of which has had a larger output than at any previous date), such as upholstery, carpentry, painting and repair work; also the crating of all furniture and Hospital Supplies which have been shipped in such large quantities during the past year.

The Sale of Soldiers' Work.—Articles made by patients still in the hospitals and by those out-patients who learnt the various arts during their stay in hospitals is steadily on the increase. These sales not alone keep remembrance of the men in the minds of the people, but the articles beautiful and useful serve a practical purpose in the every day life of the purchaser as well.

The Exhibit of Soldiers' Work at the Canadian National Exhibition this year was daily visited by thousands of people, in innumerable cases was the work of convalescent men who were often brought back from an illness of the nerves by the discovery of a hitherto undreamed-of-skill. The exhibits of toys, pottery, wood-carving, modelling, basket work, furniture, weaving, embroidery, painted parchment, leather work, drawing and painting in water-colours and oils, were in each class pronounced by the judges to be 83 per cent better than in the same kind of articles in previous year. Through the holding of the Soldiers' Comforts Exhibit men were helped to a better condition—many who were unable to take heavy work have proved themselves capable of filling orders for light articles and it is a matter of congratulation that a goodly number have overcome debt and discouragement by the sale of their work at the Soldiers' Comforts Branch.

The Christmas Gifts.—Cheer and additions to dinners, and decorations throughout departmental hospitals and institutions other than D.S.C.R. where there are ex-soldier patients, were all carried out in a larger and even more efficient manner than last year. Photographs of the buildings and letters of thanks received, all testify to the happiness given the patients from the receipt of these remembrances.

STATEMENT SOLDIERS' COMFORTS BRANCH, 1922

	Number.	Amount.
Personal comforts	119,441	
Lounge, rest-room and verandah furniture	5,717	
Musical instruments and supplies	46,995	
Repairs to musical instruments	240	
Billiard tables and equipment	1,755	
Repairs to billard tables	95	
Amusements and treats	48,802	
Athletic supplies	1,633	
Repairs to athletic supplies	94	
Comforts for out-patients and donated articles for discharged men and their families	11,054	
Invalid chairs	54	
Repairs to invalid chairs	65	
Hospital supplies cut, made and repaired	48,474	
Hospital supplies made by hand	4,938	
Voluntary workers giving service	3,093	
Workshop—Articles covered or upholstered in tapestry, chintz, fabrikoid or leather	561	
Articles mended, crated or baled	7,840	
Sales of soldiers' work—4,729 articles amounting to		$13,757 15
Christmas gifts for hospital patients	3,863	
Cheques for extra decorations		93 00
Miscellaneous decorations	23,000	
Supplemented to hospital Christmas dinners	12	
Gifts and supplemented to dinners for out-patients	147	
	327,873	13,850 15

The above figures show the total output for the year just ended.

In conclusion warm tribute is paid to all those who have given daily service in this branch; also to those who have co-operated and given generous effort and assistance from outside.

It is further desired to pay tribute and do honour to those of Canada's sons, many of whom since their return from overseas (nearly seven years ago) have been bed patients, ill and in pain.

They have truly demonstrated, as have so many others of their comrades, the greatest spirit of self sacrifice, patience and cheerful endurance, and they are an object lesson to all the world.

ACCOUNTS AND AUDIT BRANCH

Comprehensive financial statements are the best means of reporting the disbursing and accounting activities of the department. The methods and procedure involved have already been described in detail in the annual reports of 1920 and 1921. The following statements speak for themselves.

These statements cover the accounts of the department both for the fiscal year ending March 31, 1922, and the calendar year ending December 31, 1922. With these accounts have been combined the Pension accounts and expenditures since April 1, 1916. These latter were under the control of the Board of Pension Commissioners to June 30, 1921. The Pension accounts proper were not incorporated with those of the department until April 1, 1922.

The cost of administration for both organizations, excluding salaries of the Commissioners and the expense of the Board itself since April 1, 1922, is shown under S.C.R. expense from April 1, 1921.

Following upon the amalgamation of the District Offices in January, 1921, and of the Head Office organizations in May and June, 1921, it has been practically impossible to differentiate between Pensions and S.C.R. administration. Certain direct expenses distinctly due to assessment, award and payment of Pensions have, of course, been so shown in the S.C.R. accounts; i.e., travelling and transportation of pensioners, medical examination for pension purposes, and similar items.

The balance sheet, in addition to reflecting the current condition of the department, shows the disposition of certain property and the amount of funds held in trust with the Department of Finance.

"Operating Expenses—S.C.R." and "Cost of Pensions" show the actual yearly expenses and costs of each item or service irrespective of the cash disbursements and appropriation expenditures reflected both on this department's and in the Department of Finance's statements.

It is the purpose of the various exhibits and statements to reflect,—first, the cost of rendering service and implementing State pledges to returned soldiers: secondly, how such costs were met and are being met from the various appropriations granted by Parliament. Exhibits 2, 3, 4, 5 and 6 and schedules A, B, C and D show the costs incurred and assets acquired in this respect, while exhibits 7, 8, 9 and schedules F, G, H, and the relative supporting schedules portray how the funds were acquired, and how they were charged in the Public Accounts of Canada.

Attention is directed to the various appendices submitted, the figures for which were obtained largely from the books of the department.

CONSOLIDATED BALANCE SHEET, DECEMBER 31, 1922

EXHIBIT I

CURRENT ASSETS—			
Cash advances, per schedule "A"		$ 86,049 10	
Stores and disposal stores, per schedule "A"		547,788 27	
Limb factory operations, per schedule "A"		180,426 70	
Accounts receivable, per schedule "B"		984,717 63	
Total Current Assets			$ 1,798,981 70
LOANS AND FUNDS—			
Vocational loans (P.C. 2329 of 1919 and P.C. 580 of 1922), per schedule "C"	$ 259,122 19		
City of Edmonton Loan (*re* Strathcona Hospital)	$ 60,000 00		
University of Alberta (*re* Strathcona Hospital)	100,000 00		
		160,000 00	
War Service Gratuity Fund (See Exhibit 8)		193,646 14	
Returned Soldiers' Insurance Fund (See Exhibit 8)		780,108 51	
Pension Administration Fund (See Exhibit 8)		114,547 01	
Total Loans and Funds			1,507,423 85
COST OF PROPERTY AND PLANT—			
Lands, per schedule "D"		254,681 08	
Buildings, building grants and fixtures, per schedule "D"		6,902,597 78	
Equipment and live stock, per schedule "D"		2,085,622 82	
Total Cost of Property			9 242,901 68
"Government Department Transfers" (P.C. 3017 of 1920), per schedule "E"			1,650,521 55
"Balance being Operating Expenses, S.C.R.," per exhibit 2		$116,816,777 36	
"Cost of Pensions," per exhibit 3		151,433,314 56	
			$268,250,091 92
			$282,449,020 70

CURRENT LIABILITIES—			
War Service Gratuity Trust accounts		$ 193,646 14	
Deferred pay and allowances		300,000 00	
Pension Administration Trust accounts		114,547 01	
Accrued transportation, per schedule "F"		105,596 58	
Returned Soldiers' Insurance Trust accounts		780,108 51	
Department of Finance (*re* city of Edmonton loan)		160,000 00	
Department of Militia and Defence		395,282 79	
Board of Pension Commissioners		38,485 00	
Other liabilities not included above		8,507 40	
Total Current Liabilities			$ 2,096,173 43
APPROPRIATION EXPENDITURES—			
Soldiers' Civil Re-establishment, per schedule "G"		$128,920,432 71	
Pensions, per schedule "H"		151,433,314 56	
Total Appropriation Expenditures			$280,353,747 27
			$282,449,020 70

OPERATING EXPENSES FROM JULY, 1915, TO DECEMBER 31, 1922

EXHIBIT 2

	Seven years six months ending Dec. 31, 1922	Twenty-one months ending Mar. 31, 1917	Twelve months ending Mar. 31, 1918	Twelve months ending Mar. 31, 1919	Twelve months ending Mar. 31, 1920	Twelve months ending Mar. 31, 1921	[1]Twelve months ending Mar. 31, 1922	[2]Nine months ending Dec. 31, 1922
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
General administration	13,398,666 74	446,857 54	1,321,361 26	1,312,274 91	2,873,374 12	3,049,349 50	2,751,253 06	1,644,196 35
Imperial Pension office	80,953 61							80,953 61
Care of patients and medical examination of pensioners	34,870,380 01	391,693 59	3,093,796 09	2,153,196 33	7,288,902 73	9,334,170 40	7,621,152 53	4,987,468 34
Orthopaedic, opthalmic and surgical appliances, etc	2,242,330 35	1,688 19	41,532 30	265,822 87	726,489 04	513,373 95	444,929 80	245,194 20
Vocational training and loans expense	11,835,460 72	60,460 35	458,733 36	1,378,524 86	6,058,178 17	3,529,169 57	281,843 60	68,550 81
Unemployment relief	3,285,618 90					842,403 02	1,764,019 85	679,196 03
Information and employment	1,243,933 93			76,343 08	676,384 94	219,713 81	186,854 45	84,637 65
Sheltered employment	39,697 20							39,697 20
Pay and allowances—								
Treatment	16,994,347 00			1,542,337 71	4,971,857 50	4,266,258 24	3,736,674 03	2,477,219 52
Training	31,102,116 08	7,165 14	344,871 71	2,222,969 86	16,108,970 14	10,751,645 53	1,403,928 55	262,565 15
War and provisional bonus	3,285,618 87				1,329,654 17	1,061,932 27	625,309 26	268,723 17
Other miscellaneous expenses	768,771 76					342,736 63	293,747 23	132,287 90
Gross operating expenses	119,147,895 17	908,164 81	5,263,294 72	8,951,469 62	40,033,810 81	33,910,752 92	19,109,712 36	10,970,689 93
Operating revenue	2,331,117 81					250,181 25	1,494,774 78	586,161 78
Net Operating Expenses	116,816,777 36	908,164 81	5,263,294 72	8,951,469 62	40,033,810 81	33,660,571 67	17,614,937 58	10,384,528 15

Includes Board of Pension Commissioners District Office expense since January 1, 1921, Board of Pension Commissioners Head Office since April 1, 1921, and Imperial Pension Office since April 1, 1922.

[1]For details, etc., see Exhibit 4, and Schedules "1" to "Q." [2]See also Exhibit 5.

COST OF PENSIONS SINCE APRIL 1, 1916, TO DECEMBER 31, 1922

EXHIBIT 3

—	Total Cost to Dec. 31, 1922	Twelve months ending Mar. 31, 1917	Twelve months ending Mar. 31, 1918	Twelve months ending Mar. 31, 1919	Twelve months ending Mar. 31, 1920	Twelve months ending Mar. 31, 1921	Twelve months ending Mar. 31, 1922	Nine months ending Dec. 31, 1922
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
European War and Active Militia	143,526,222 12	2,351,825 47	7,264,173 35	16,599,235 66	23,294,665 13	36,325,142 25	33,743,707 54	23,947,472 72
Northwest Rebellion, 1885, general	166,918 33	19,613 21	17,551 60	25,534 51	15,590 11	23,747 41	34,121 83	30,759 66
Fenian Raid, 1866	6,208 88	1,467 80	1,170 25	1,170 25	634 70	514 25	731 63	520 00
Militia Long Service Pensions	1,846,983 33	87,600 05	94,913 04	139,729 19	224,373 82	406,907 45	484,946 30	408,513 48
Pensions administration	5,886,981 90	95,549 56	521,112 19	1,343,114 00	2,416,705 78	1,520,301 56	[1](9,801 19)	
Total Cost of Pensions	151,433,314 56	2,556,056 09	7,898,920 43	18,108,783 61	25,951,969 54	38,276,612 92	[2]34,253,706 11	24,387,265 86

This statement does not include salaries paid to commissioners which, according to Reports of Auditor General, were as follows:—

1917-18	$ 10,000 00
1918-19	8,017 37
1919-20	14,979 23
1920-21	17,991 81
1921-22	18,983 33

During the year ending March 31, 1916, Pensions amounting to $307,571.74 were paid by Department of Militia and Defence and charged to European War.

[1]Refunds of previous years' expenditures. (Credit). [2]Cost of Administration included under "Operating Expenses" S.C.R., see Exhibits, 2, 4, 5 and 6.

EXHIBIT 4

STATEMENT OF EXPENDITURES AND REVENUE FISCAL YEAR ENDING MARCH 31, 1922

Operating Expenditures—			
General administration, per schedule "I"		$2,751,253 06	
Treatment administration, per schedule "J"		640,705 22	
Care of patients and medical examination of pensioners, per schedule "K"		7,425,377 11	
Treatment pay and allowances, per schedule "L"		3,736,674 03	
Vocational and training expense, per schedule "M"		468,698 05	
Training pay and allowances, per schedule "N"		1,403,928 55	
Unemployment relief, per schedule "O"		1,764,019 85	
Other miscellaneous expenses, per schedule "P"		293,747 23	
Provisional bonus, all services		625,309 26	
Gross operating expenditures			$19,109,712 36
Operating revenue, per schedule "Q"			1,494,774 78
Net operating expenditures			$17,614,937 58
Net disbursements on Soldiers' Civil Re-establishment and Pensions Administration, per exhibit 7			$17,336,293 40
Net decrease in Capital Accounts, per schedule "R"			126,179 93
Accounts incurred with but not paid to the following:—			
Department of Militia and Defence (Hospitalization and Stores)	$113,979 25		
Board of Pension Commissioners (Stationery Stores)	38,485 00		
		152,464 25	
			$17,614,937 58

EXHIBIT 5

DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT STATEMENT OF EXPENDITURES AND REVENUE NINE MONTHS ENDING DECEMBER 31, 1922

Operating Expenditures—			
General administration	$1,644,196 35		
Imperial Pension Office	80,953 61		
Treatment administration	332,247 17		
Care of patients and medical examination of pensioners	4,900,485 37		
Treatment pay and allowances	2,477,219 52		
Vocational expense	153,188 46		
Training pay and allowances	262,565 15		
Unemployment relief	679,196 03		
Sheltered employment	39,697 20		
Other miscellaneous items	132,287 90		
Provisional bonus	268,723 17		
Gross operating expenditures		$10,970,689 93	
Operating revenue		586,161 78	
Net operating expenditures			$10,384,528 15
Net disbursement on Soldiers' Civil Re-establishment and Pensions administration, per exhibit 8			$9,240,977 08
Net decrease in capital accounts			711,830 78
Liabilities incurred but not paid			431,720 29
			$10,384,528 15
Pensions Expenditures—			
European War Pensions—			
Pensions	$23,210,035 19		
Gratuities	280,440 21		
Final payments by agreement	373,768 41		
New Zealand pensions (recoverable)	131 55		
Burial grants	10,234 71		
Supplementary Imperial pensions	43,289 41		
Supplementary French pensions	33,136 14		
Supplementary Italian pensions	1,051 14		
Total		$23,952,086 76	
Less recovery for Decoration Awards 1921-22		4,614 04	
			$23,947,472 72
Fenian Raid, 1866, pensions			520 00
Northwest Rebellion, 1885, and general			30,759 66
Militia Long Service pensions, Militia Act, 1901			408,513 48
Net Pensions expenditures			$24,387,265 86
Net disbursements on pensions, per exhibit 8			$24,387,265 86

EXHIBIT 6

STATEMENT OF EXPENDITURES AND REVENUE, TWELVE MONTHS ENDING DECEMBER 31, 1922

Operating Expenses—		
General administration	$2,375,976 47	
Treatment administration	466,531 74	
Care of patients	7,049,588 14	
Treatment pay and allowances	3,376,347 90	
Vocational and loans expense	210,246 43	
Training pay and allowances	417,381 13	
Unemployment relief	1,863,741 43	
Miscellaneous expense	238,224 57	
Provisional bonus	418,384 23	
Sheltered employment	39,697 20	
Gross operating expenditures	$16,456,119 24	
Deduct—Operating revenue	1,694,593 76	
Net operating expenditure		$14,761,525 48
Net disbursements on Soldiers' Civil Re-establishment and Pensions administration, per exhibit 9		$13,941,375 14
Net decrease in capital accounts		315,453 29
Accounts incurred but not paid		504,697 05
		$14,761,525 48
Pension Expenditures—		
European War—		
Pensions, gratuities, etc	$31,910,911 79	
New Zealand pensions (recoverable)	2,129 25	
Burial grants	12,613 05	
Supplementary Imperial pensions	64,466 05	
Supplementary French pensions	40,926 16	
Supplementary Italian pensions	1,375 23	
	$32,031,521,53	
Less recovery for Decoration Awards paid in 1921	141 40	
		$32,031,380 13
Fenian Raid, 1866		633 50
Northwest Rebellion, 1885 and general		37,933 14
Militia Long Service pensions		548,668 43
Net disbursements on pensions, per exhibit 9		$32,618,615 20

EXHIBIT 7

STATEMENT OF APPROPRIATION ACCOUNTS FISCAL YEAR ENDING MARCH 31, 1922

Soldiers' Civil Re-establishment—			
Capital	$ 38,439 37		
Care of patients	3,914,899 45		
Vocational expense	130,788 96		
Salaries	5,612,461 48		
Pay and allowances	5,106,386 65		
Vocational loans	62,906 38		
Interest on War Service Gratuity	9,997 23		
Unemployment relief	1,764,712 36		
Operating expenditures	468,756 87		
Employers' liability compensation	40 88		
Civil pay difference, Grand Trunk Pacific employees	37,961 54		
Total Soldiers' Civil Re-establishment		$17,147,351 17	
Civil Government—			
Salaries and contingencies	$ 26,439 50		
Minister's salary	5,277 76		
Total Civil Government		31,717 26	
Pensions—Salaries and Contingencies—			
Permanent staff salaries	$ 340,662 38		
Temporary salaries and contingencies	200,016 18		
Total pensions—Salaries and contingencies		541,829 30	
Demobilization		37,343,22	
Provisional bonus		625,401 02	
Increases in salary due to reclassification		1,980 42	
		$18,385,622 39	
Deduct refunds to Casual Revenue		1,049,328 99	
Net disbursement on Soldiers' Civil Re-establishment and Pensions Administration			$17,336,293 40

EXHIBIT 7—*Con.*

STATEMENT OF APPROPRIATION ACCOUNTS, FISCAL YEAR ENDING MARCH 31, 1922—*Concluded*

Pensions—			
European War and Active Militia	$34,828,787 44		
Northwest Rebellion, 1885, and general	34,121 83		
Fenian Raid, 1866	731 63		
Militia Pensions Act, 1901	484,948 71		
Total Pensions		$35,348,589 61	
Deduct—Refunds to Casual Revenue		61,923 13	
Net disbursements on Pensions			$35,286,666 48
War Service Gratuity Fund (Trust Fund No. 1)—			
Balance—April 1, 1921		$ 249,123 02	
Receipts from Department of Militia and Defence		15,291 73	
Interest on Credit Balances (Soldiers' Civil Re-establishment Vote 280)		9,997 23	
		$	274,411 98
Payments to Soldiers' Civil Re-establishment patients on discharge			73,694 94
Balance—March 31, 1922		$	200,717 04
Pay and Allowance Balances, Fiscal Year 1919-20 (Trust Fund No. 2)—			
Balance—April 1, 1921		$ 63,297 46	
Transferred to Soldiers' Civil Re-establishment pay and allowances		$	63,297 46
Balance—March 31, 1922			Nil
Returned Soldiers' Insurance Fund—			
Balance—April 1, 1921		$ 87,978 69	
Ordinary Income		10,560,24	
Interest received from Department of Finance		6,256,76	
		$	504,795 69
Ordinary Expenditure			119,808 15
Balance, March 31, 1922		$	384,987 54

EXHIBIT 8

STATEMENT OF APPROPRIATION ACCOUNTS, NINE MONTHS ENDING DECEMBER 31, 1922.

Soldiers' Civil Re-establishment—			
Capital	$ 46,495 45		
Care of patients	2,184,468 64		
Vocational expense	34,875 56		
Salaries	3,840,720 80		
Pay and allowances	2,453,230 56		
Vocational loans	18,403 13		
Interest on War Service Gratuity	7,821 70		
Unemployment relief	694,905 16		
Operating expenditures	486,187 80		
Employers' liability compensation	13,723 63		
After Care of tuberculous and sheltered employment	4,451 03		
Burial expenses of the destitute	4,150 00		
Repatriation from Great Britain	3,510 94		
Relief of destitute Canadians in Great Britain	180 07		
Total Soldiers' Civil Re-establishment		$ 9,793,124 47	
Civil Government—			
Salaries and contingencies	$ 20,582 82		
Minister's salary	7,499 97		
Total Civil Government		$ 28,082 79	
Provisional bonus		268,922 25	
Miscellaneous gratuities		140 00	
		$10,090,269 51	
Deduct—Refunds to Casual Revenue		849,292 43	
Net disbursements on Soldiers' Civil Re-establishment and Pensions administration			$9,240,977 08

EXHIBIT 8—*Continued.*

STATEMENT OF APPROPRIATION ACCOUNTS, NINE MONTHS ENDING DECEMBER 31, 1922—*Continued.*

Pensions—			
European War and Active Militia	$24,034,045 57		
Northwest Rebellion 1885, and general	30,879 66		
Fenian Raid, 1866	520 00		
Militia pensions Act, 1901	409,207 32		
Total Pensions		$24,474,652 55	
Deduct—Refunds to Casual Revenue		87,386 69	
Net disbursements on pensions			$24,387,265 86
War Service Gratuity Fund—			
Balance, April 1, 1922		$ 200,717 04	
Receipts from Militia and Defence		3,829 24	
Interest on credit balances		7,821 70	
			$ 212,367 98
Payments to S.C.R patients on discharge			18,721 84
Balance, December 31, 1922			$ 193,646 14
Returned Soldiers' Insurance Fund—			
Balance, April 1, 1922		$ 384,987 54	
Ordinary income		637,622 53	
			$ 1,022,610 07
Ordinary expenditure			242,501 56
Balance, December 31, 1922			$ 780,108 51
Pensions Administration Fund—			
Receipts from Canadian Pension Division			$ 188,768 32
Payments to or in respect of pensioners being beneficiaries of fund			74,221 31
Balance, December 31, 1922			$ 114,547 01

EXHIBIT 9

STATEMENT OF APPROPRIATION ACCOUNTS, TWELVE MONTHS ENDING DECEMBER 31, 1922.

Soldiers' Civil Re-establishment—			
Capital	$ 56,867 50		
Care of patients	3,248,934 81		
Vocational expense	25,803 98		
Salaries	5,124,449 81		
Pay and allowance—Treatment	3,025,178 76		
Training	484,190 02		
Vocational loans	27,165 70		
Interest on War Service Gratuity	8,564 39		
Unemployment relief	1,879,607 86		
Operating expense	398,157 39		
Civil pay, Grand Trunk Pacific	37,961 54		
Employers' liability compensation	13,764 51		
Sheltered employment	4,451 03		
Burial expenses of the destitute	4,150 00		
Repatriation from Great Britain	3,510 94		
Relief of destitute Canadians in Great Britain	180 07		
Total Soldiers' Civil Re-establishment		$14,342,938 34	
Civil Government—			
Salaries and contingencies	$ 26,990 19		
Minister's salary	10,833 29		
Total Civil Government		37,823 48	
Pensions, salaries and contingencies		132,471 15	
Demobilization		7,973 13	
Increases due to reclassification		195 89	
Miscellaneous gratuities		140 00	
Provisional bonus		418,521 60	
Total disbursements		$14,940,063 59	
Deduct—Refunds to Casual Revenue		998,688 45	
Net disbursements on Soldiers' Civil Re-establishment and Pensions administration		$13,941,375 14	

EXHIBIT 9—*Continued*

STATEMENT OF APPROPRIATION ACCOUNTS, TWELVE MONTHS ENDING DECEMBER 31, 1922—*Continued.*

Pensions—			
European War and Active Militia	$32,117,952 98		
Northwest Rebellion, 1885 and general	38,053 14		
Fenian Raid, 1866	633 50		
Militia Pensions Act, 1901	549,362 27		
Total Pensions	$32,706,001 89		
Deduct—Refunds to Casual Revenue	87,386 69		
Net disbursements on Pensions			$32,618,615 20
War Service Gratuity Fund—			
Balance, January 1, 1922		$ 209,706 23	
Receipts from Militia and Defence		6,523 66	
Interest on credit balances		8,564 39	
			$ 224,794 28
Payments to S.C.R. patients on discharge			31,148 14
Balance, December 31, 1922			$ 193,646 14
Returned Soldiers' Insurance Fund—			
Balance, January 1, 1922		$ 276,791 28	
Ordinary income		793,279 30	
Interest received from Department of Finance		6,256 76	
			$ 1,076,327 34
Ordinary expenditure			296,218 83
Balance, December 31, 1922			$ 780,108 51

For Pensions Administration Fund Transactions, see Exhibit 8.

SCHEDULE "A"

STATEMENT SHOWING DISTRIBUTION OF CURRENT ASSETS BY PROVINCES AS AT DECEMBER 31, 1922

Unit—Province	Total	Cash Advances	General and Disposal Stores	Limb Factory Operations
	$ cts.	$ cts.	$ cts.	$ cts.
"A"—Quebec	158,177 14	1,828 24	148,686 09	7,662 81
"B"—Nova Scotia and Prince Edward Island	37,302 25	1,312 00	33,292 57	2,697 68
"C"—Eastern Ontario	46,313 53	32,122 80	13,117 46	1,103 27
"D"—Central Ontario	332,585 42	29,701 12	207,749 24	115,135 06
"F"—Western Ontario	55,654 03	1,235 00	52,543 11	1,875 92
"G"—Manitoba	28,047 48	1,848 16	19,621 21	6,578 11
"H"—Saskatchewan	12,998 83	1,798 00	5,123 21	6,077 62
"I"—Alberta	45,362 32	1,827 00	35,625 08	7,910 24
"J"—British Columbia	49,613 30	11,555 77	22,463 08	15,594 45
"K"—New Brunswick	11,842 90	630 00	9,567 22	1,645 68
"M"—London, Eng.	16,336 87	2,191 01	.....	14,145 86
Total	814,264 07	86,049 10	547,788 27	180,426 70

SCHEDULE "B"

ACCOUNTS RECEIVABLE, AS AT DECEMBER 31, 1922

Government of Newfoundland	$ 14,866 75
Government of Australia	7,719 13
Government of South Africa	516 70
Government of New Zealand	1,902 39
Government of Great Britain—	
Ministry of Pensions	39,716 35
Ministry of Labour	510,024 79
Government of United States	10,794 85
Government of France	6,343 46
Government of Belgium	36 77
Department of Militia and Defence	92,316 47
Board of Pension Commissioners	96 50
Other Miscellaneous Accounts	300,383 47
Total	$ 984,717 63

SCHEDULE "C"

STATEMENT SHOWING DISTRIBUTION OF VOCATIONAL LOANS BY PROVINCES

Quebec	$ 10,280 75
Nova Scotia	17,374 48
Eastern Ontario	16,971 52
Central Ontario	72,320 87
Western Ontario	19,587 58
Manitoba	20,816 71
Saskatchewan	21,016 99
Alberta	26,625 86
British Columbia	41,567 53
New Brunswick	12,550 90
	$ 259,122 19

SCHEDULE "D"

STATEMENT SHOWING DISTRIBUTION OF COST OF PROPERTY BY PROVINCES AS AT DECEMBER 31, 1922

Unit—Province	Total	Lands	Buildings, Building Grants, Fixtures	Equipment and Live Stock
	$ cts.	$ cts	$ cts	$ cts.
"A"—Quebec	1,188,991 46		846,664 02	342,327 44
"B"—Nova Scotia and Prince Edward Island	1,342,048 11		1,242,178 91	99,869 20
"C"—Eastern Ontario	1,172,469 19		693,799 92	478,669 27
"D"—Central Ontario	2,316,602 98	231,000 00	1,587,200 16	498,402 82
"E"—Western Ontario	706,831 16		514,087 96	192,743 20
"G"—Manitoba	515,328 91		465,958 70	49,370 21
"H"—Saskatchewan	533,404 34		507,692 05	25,712 29
"I"—Alberta	636,997 62	23,681 08	418,867 80	194,448 74
"J"—British Columbia	527,836 31		411,849 92	115,986 39
"K"—New Brunswick	290,535 47		213,641 74	76,893 73
"M"—London, Eng	11,856 13		656 60	11,199 53
Totals	9,242,901 68	254,681 08	6,902,597 78	2,085,622 82

SCHEDULE "E"

VALUE OF SURPLUS STORES AND EQUIPMENT TRANSFERRED TO OTHER GOVERNMENT DEPARTMENTS UNDER AUTHORITY OF ORDER IN COUNCIL P.C. 3017 OF 1920, DECEMBER, 1920, TO DECEMBER 31, 1922

Department	Total	Fiscal Year 1920–21	Fiscal Year 1921–22	Nine Months ending Dec. 1922, Fiscal Year 1922–23
	$ cts.	$ cts.	$ cts.	$ cts.
Agriculture	31,275 49	1,104 32	28,165 92	2,005 25
Air Board	159,579 21	25,853 69	130,810 89	2,914 63
Customs and Excise	1,418 80	.....	1,395 80	23 00
Finance	5,199 00	311 30	4,214 09	673 61
Health	2,614 47	253 59	2,279 88	81 00
Immigration and Colonization	27,798 65	3,967 88	23,184 65	646 12
Indian Affairs	289,476 23	58,833 63	170,933 03	59,709 57
Interior	103,725 99	46,856 91	33,455 03	23,414 05
Justice	430,091 21	25,954 65	356,256 81	47,879 75
Labour	700 00	.....	700 00	.....
Marine and Fisheries	1,371 13	540 66	521 49	308 98
Militia and Defence	165,544 80	21,322 26	126,271 75	17,950 79
Mines	124,478 56	3,330 98	106,766 51	14,381 07
Naval Service	18,465 64	4,659 03	13,588 65	217 96
Post Office	1,856 24	59 50	156 50	1,640 24
Printing and Stationery	125,311 23	60,460 39	60,788 88	4,061 96
Public Works	84,107 64	15,769 48	55,796 22	12,541 94
Railways and Canals	58,681 77	19 40	48,196 14	10,466 23
Royal Canadian Mounted Police	16,555 29	2,664 38	10,587 57	3,303 34
Other Miscellaneous Bureaux	2,270 20	127 02	2,143 18	.....
Total	1,650,521 55	272,089 07	1,176,212 99	202,219 49

SCHEDULE "F"

ACCRUED TRANSPORTATION AS AT DECEMBER 31, 1922

Canadian Pacific Railway	$ 26,835 41
Canadian National Railway	50,979 69
Dominion Express Company	12,851 30
Canadian National Express Company	2,728 63
Other Miscellaneous Companies	12,201 55
Total	$ 105,596 58

SCHEDULE "G"

APPROPRIATION EXPENDITURES

War—		
1915–17	$ 1,484,048 90	
1917–18	11,393,654 65	
1918–19	11,831,232 85	
Total	$24,708,936 40	
Less Refund 1919–20	41,098 11	
		$24,667,838 29
Soldiers' Civil Re-establishment—		
1919–20	$41,738,130 79	
1920–21	33,528,337 79	
1921–22 (Exhibit 7)	17,147,351 17	
1922–23 (9 mos.) (Exhibit 8)	9,793,124 47	
		102,206,944 22
War Bonus—		
1919–20		136,795 29

SCHEDULE "G"—*Continued.*

APPROPRIATION EXPENDITURES—*Continued.*

Provisional Bonus[2]—			
1919–20	$ 1,192,858 88		
1920–21	1,062,748 61		
1921–22	625,401 02		
1922–23 (9 mos.)	268,922 25		
		$ 149,930 76	
Demobilization—			
1921–22		37,343 22	
Civil Government—Soldiers' Civil Re-establishment—			
1918–19	$ 18,616 13		
1919–20	32,184 40		
1920–21	31,179 95		
1921–22	31,717 26		
1922–23 (9 mos.)	28,082 79		
		141,780 53	
Pensions—Salaries and Contingencies—			
1921–22		541,829 30	
Increases in Salaries due to Reclassification—			
1920–21	$ 3,499 82		
1921–22	1,980 42		
		5,480 24	
Miscellaneous Gratuities—			
1922–23		140 00	
			$130,888,081 85
Deduct—Casual Revenue—			
1919–20	$ 566 73		
1920–21	68,460 99		
1921–22	1,049,328 99		
1922–23 (9 mos.)	849,292 43		
			1,967,649 14
Net Total			$128,920,432 71

SCHEDULE "H"

PENSIONS APPROPRIATION EXPENDITURES

European War—			
1916–17	$ 2,447,375 03		
1917–18	7,262,810 23		
1918–19	16,598,601 06		
1919–20	23,308,695 57		
1920–21	35,375,676 22		
1921–22	34,828,787 44		
1922–23 (9 mos.)	24,034,045 57		
			$143,855,991 12
Northwest Rebellion, 1885, and General—			
1916–17	$ 19,613 21		
1917–18	17,551 60		
1918–19	24,727 14		
1919–20	15,590 11		
1920–21	23,747 41		
1921–22	34,121 83		
1922–23 (9 mos.)	30,879 66		
			166,230 96
Fenian Raid, 1866—			
1916–17	$ 1,467 80		
1917–18	1,170 25		
1918–19	1,280 25		
1919–20	634 70		
1920–21	514 25		
1921–22	731 63		
1922–23 (9 mos.)	520 00		
			6,318 88

SCHEDULE "H"—*Continued.*

PENSIONS APPROPRIATION EXPENDITURES—*Concluded.*

Militia Pensions Act, 1901—		
1916-17	$ 87,600 05	
1917-18	94,913 04	
1918-19	136,990 22	
1919-20	228,534 26	
1920-21	406,907 45	
1921-22	484,948 71	
1922-23 (9 mos.)	409,207 32	
		1,849,101 05
Salaries and Contingencies—		
1917-18	$ 522,475 31	
1918-19	1,262,655 38	
1919-20	2,183,027 99	
1920-21	1,367,872 34	
		5,336,031 02
War Bonus—		
1918-19	$ 76,048 40	
1919-20	5,103 54	
		81,151 94
Provisional Bonus—		
1919-20	$ 245,440 39	
1920-21	179,306 89	
		424,747 28
		$151,719,572 25
Deduct—Casual Revenue—		
1918-19	$ 645 32	
1919-20	25,930 54	
1920-21	110,372 01	
1921-22	61,923 13	
1922-23 (9 mos.)	87,386 69	
		286,257 69
		$151,433,314 56

In addtion during the fiscal year ending March 31, 1916, the Department of Militia and Defence paid pensions amounting to $307,571.74 which were charged to War Expenditures as "European War Pensions".

SCHEDULE "I"

OPERATING EXPENDITURES 1921-22

GENERAL ADMINISTRATION

Salaries—General Executive and assistants	$ 154,494 88		
Administration Branch	1,531,193 28		
Accounts and Audit Branch	560,023 77		
		$ 2,245,711 93	
Telephones, telegrams, postage and car fares		75,672 02	
Transportation and travelling of staff		82,021 04	
Stationery and office supplies		136,194 83	
Rent, taxes and insurance		27,009 28	
Light, heat, power and water rates		23,632 95	
Maintenance and repairs of furniture and fixtures		23,591 20	
Automobile expense		62,177 13	
Freight and express		29,723 27	
Advertising and publicity		3,969 89	
Other General expenses		52,934 09	
		$ 2,762,637 72	
Deduct—Discounts earned		11,384 66	
			$ 2,751,253 06

SCHEDULE "J"

OPERATING EXPENDITURES 1921-22—*Continued*

TREATMENT ADMINISTRATION

Salaries—Medical directors and sub-staff	$ 521,598 58		
Dental directors and sub-staff	39,892 90		
Investigation Section, Toronto	24,568 64		
		$ 586,060 12	
Telephones, telegrams, postage and car fares		16,165 81	
Transportation and travelling of staff		45,894 79	
Stationery and office supplies		14,406 62	
Rent, taxes and insurance		377 70	
Light, heat, power and water rates		3,762 38	
Maintenance and repairs to furniture, etc		956 73	
Automobile expense		5,046 80	
Other charges		3,965 14	
		$ 676,636 09	
Deduct—Expenses of operating Central and Western Medical Stores charged to Medical and Surgical supplies		35,930 87	
			$ 640,705 22

SCHEDULE "K"

CARE OF PATIENTS AND MEDICAL EXAMINATION OF PENSIONERS

Department Hospitals and Clinics—			
Salaries—Medical officers		$ 832,779 64	
Dental officers		132,459 25	
Other hospital staff		1,947,456 96	
Telephones, telegrams, postage and car fares		15,095 69	
Stationery and office supplies		12,437 25	
Rent, taxes and insurance		33,269 78	
Light, heat, power and water rates		367,471 31	
Maintenance and repairs of furniture and equipment		71,242 64	
Maintenance and repairs of buildings and fixtures		56,406 29	
Automobile and ambulances		13,087 48	
Freight and express		26,270 97	
Food and ice		867,756 64	
Medical, surgical, dental and x-ray supplies		194,126 92	
Employees' clothing		7,135 48	
Hospital and janitors' supplies		40,988 36	
Laundry expense		100,887 10	
Patients' clothing and comforts		36,783 93	
Cartage and drayage		4,424 31	
Amusement supplies and expense		7,344 32	
Ward occupations and occupational therapy		4,308 93	
Other general charges		22,171 50	
			$ 4,793,902 85
Outside Hospitals and Doctors—			
Professional services		$ 168,019 12	
Maintenance of patients		1,708,701 97	
Other special charges		18,421 09	
			1,895,142 18
Indirect Charges—			
Transportation of patients and pensioners		$ 181,243 84	
Expenses of escorts		12,973 20	
Funerals and burial		47,925 48	
			245,142 52
Orthopædic and Ophthalmic Expenses—			
Artificial arms, parts and repairs		$ 29,747 27	
Artificial legs, parts and repairs		153,960 72	
Boots and shoes and repairs		177,761 60	
Minor orthopædic appliances and repairs		65,456 67	
Optical supplies, parts and repairs		15,236 68	
Equipment and supplies for the blind		946 97	
Wheel chairs and repairs		1,819 89	
			444,929 80
Soldiers' Comforts Branch—			
Salaries	$ 9,173 10		
Office expenses	2,385 23		
Comforts, amusements, games, etc., issued to patients and upkeep thereof	23,611 54		
		$ 35,169 87	
Farm and Garden Expense—			
Salaries and wages	$ 18,878 54		
Supplies and expense	19,172 06		
	38,050 60		
Less value of products	26,960 71		
		11,089 89	
			$ 7,425,377 11

SCHEDULE "L"

OPERATING EXPENDITURES 1921-22—*Continued*

TREATMENT PAY AND ALLOWANCES

Ordinary treatment	$ 3,104,979 91	
Interest on accrued balances	7,999 84	
Payments to dependents of the insane	248,348 94	
Allowances to subnormal, P.C. 2328	148,605 39	
Travelling allowances, Medical, P.C. 2139	43,440 26	
Travelling allowances, Orthopædic, P.C. 2139	41,279 42	
Travelling allowances, Pensioners, P.C. 2139	142,020 27	
		$ 3,736,674 03

SCHEDULE "M"

VOCATIONAL EXPENSE

Training—			
Salaries	$ 69,295 69		
Supplies and expenses	92,529 36		
	$ 161,825 05		
Loans—			
Salaries	$ 56,765 47		
Expense	7,362 83		
	64,128 30		
Employment—			
Salaries	$ 179,732 11		
Expense	7,122 34		
	186,854 45		
Indirect Charges—			
Transportation of students	$ 13,196 63		
Transportation of staff	7,994 87		
	21,191 50		
Vetcraft Shops—			
Salaries	$ 35,249 62		
Supplies and expenses	33,403 62		
	$ 68,653 24		
Less value of products	33,954 49		
	34,698 75		
		$	468,698 05

SCHEDULE "N"

TRAINING PAY AND ALLOWANCES

Ordinary training	$ 1,402,237 42	
Travelling allowances, Students, P.C. 2139	$ 1,691 13	
		$ 1,403,928 55

SCHEDULE "O"

UNEMPLOYMENT RELIEF

Relief granted former soldiers and dependents	$ 1,661,708 42		
Administration—Salaries	$ 82,838 94		
Other expenses	19,472 49		
	$ 102,311 43		
		$	1,764,019 85

SCHEDULE "P"

MISCELLANEOUS EXPENSES

Interest on War Service Gratuity	$ 9,997 23	
Payment of Militia and Defence dental claims, P.C. 963	31,434 35	
Canteen Funds expense, P.C. 4122	5,908 87	
Workmen's Compensation Board repayments	40 88	
Difference between Civil and Military pay to Grand Trunk Pacific employees	37,961 54	
Depreciation due to revaluation of stores and equipment inventories	208,404 36	
		$ 293,747 23

SCHEDULE "Q"

OPERATING EXPENDITURES 1921-22—*Concluded*

REVENUE

Maintenance of non-Canadian and civilian patients		$ 451,943 41	
Meals supplied staff, etc		22,117 08	
Dental services performed		4,822 00	
X-ray services performed		11,599 11	
Pension medical examinations of non-Canadian pensioners		28,360 44	
Orthopædic and ophthalmic services for non-Canadians and Workmen's Compensation Boards		32,400 74	
			$ 551,242 78
Laundry—Salaries and wages	$ 34,299 10		
Supplies and expense	16,560 33		
	$ 50,859 43		
Less value of production	39,161 98		
		8,302 55	
Imperial Pension Office—Excess of commissions earned over cash cost		65,575 43	
Training of Ex-Imperial Soldiers—			
Training cost	$ 194,793 34		
Training pay and allowances	674,860 68		
		869,654 02	
			$ 1,494,774 78

SCHEDULE "R"

CHANGES IN CAPITAL ACCOUNTS

	Lands		
Decreases (Sale, Disposal, Consumption)—			
Lands	$ 13,698 85		
Buildings and fixtures	10,151 86		
Equipment	713,392 80		
Live stock	1,910 34		
Cash advances	748 92		
Stores and disposal stores	1,038,441 62		
Limb factory operations	49,596 71		
Suspense (deferred charges)	14,550 26		
Vocational loans (P.C. 2329 of 1919)	121,800 50		
Trust Fund No. 2 (transferred to pay and allowance appropriation)	63,297 46		
		$ 2,027,589 32	
Increases (Transfer)—			
Transfers of surplus stores and equipment to other Government departments (P.C. 3017 of 1920) (schedule "E")	$ 1,176,212 99		
Accounts receivable	725,196 40		
		$1,901,409 39	
Net Decrease			$ 126,179 93

DISABLEMENT FUND

The Disablement Fund has continued to be utilized for the purposes outlined in the 1920 report. The total advances outstanding at December 31, 1921, amounted to $16,574.55. Loans made during 1922 amounted to $48,666.36, making a total of $65,240.91.

The following statement of account from its inception to December 31, 1922, shows the standing of the Fund:—

Investment in Dominion of Canada War Loan Bonds	95,690 16	Subscriptions to Fund	$128,628 17
Total of Unit funds	11,335 00	Interest account including interest received on War Bonds, interest on Head Office bank account and interest on various unit accounts	40,083 32
Sundry advances from Head Office	15,610 43		
Advances considered unrecoverable	3,554 00		
Donation to Canadian National Institute for the Blind (1921)	35,000 00		
Sundry donations	6,171 82		
Administrative Expense	50 00		
Balance in Bank of Montreal	1,300 08		
	168,711 49		168,711 49

STAFF

The total staff of the Department as at December 31, 1921, numbered 4,886, and at December 31, 1922, 3,823, a reduction of 1,063 during 1922.

The subjoined comparative table shows the distribution of staff at December 31, 1921, and at December 31, 1922:—

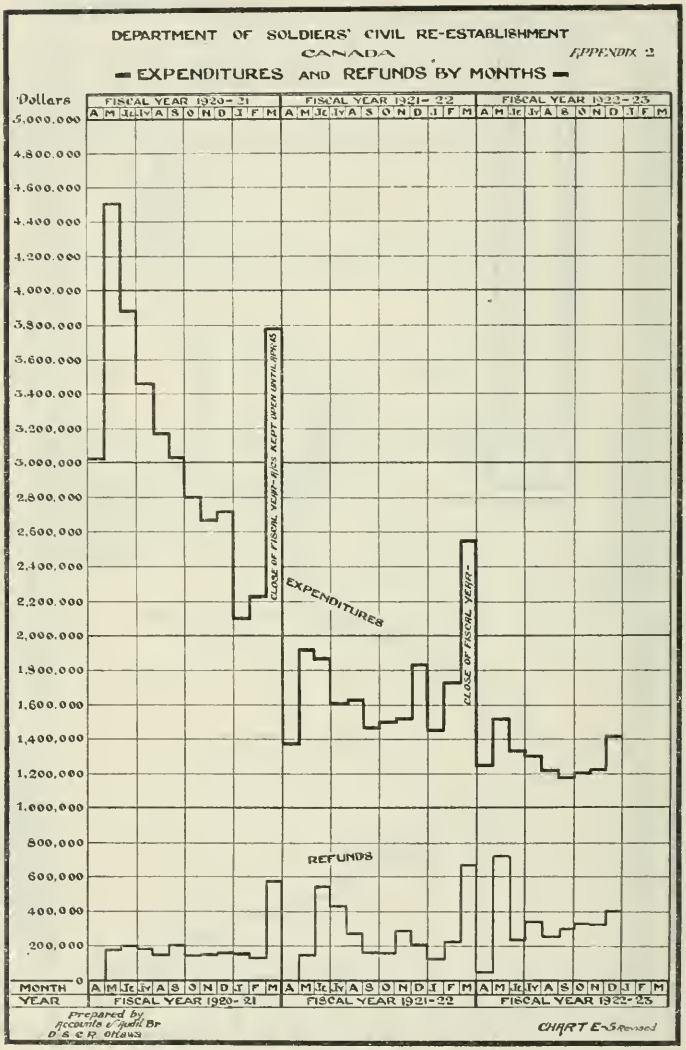
	1921	1922
Head Office, Ottawa	1,078	805
"B" Unit—Nova Scotia, New Brunswick and Prince Edward Island	395	328
"A" " —Quebec	518	459
"C" " —Eastern Ontario	338	261
"D" " —Central Ontario	1,159	876
"E" " —Western Ontario	369	351
"G" " —Manitoba	186	146
"H" " —Saskatchewan	74	67
"I" " —Alberta	375	238
"J" " —British Columbia	374	272
Overseas Office	20	20
	4,886	3,823

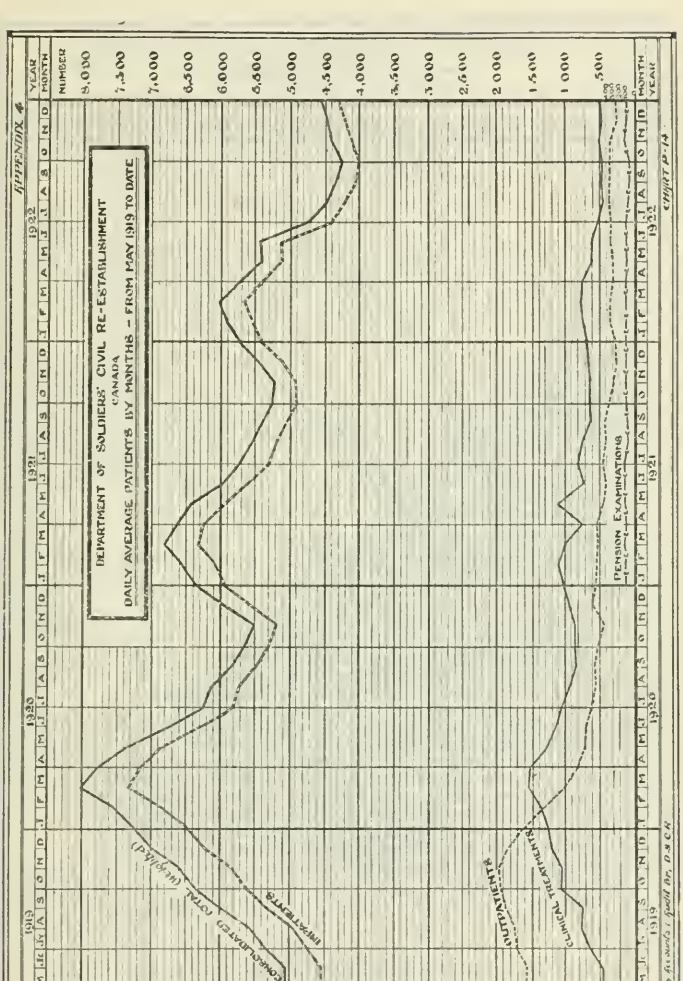
The staff at December 31, 1921, and at December 31, 1922, was composed of the following:—

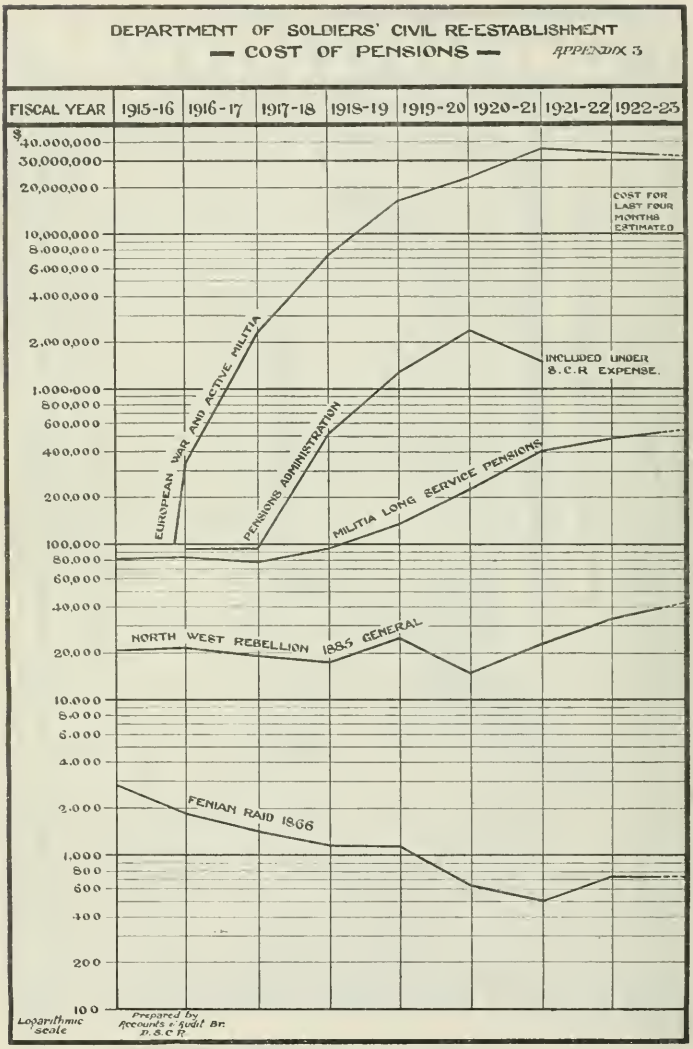
	1921		1922	
	Number	Percentage	Number	Percentage
*Ex-Service Men, France	2,557	52·33	2,105	55·06
Ex-Service Men, England	387	7·92	321	8·40
Ex-Service Men, Canada	186	3·85	146	3·82
Civilians rejected or exempted from military service	43	0·88	31	0·82
Civilians, boys under and men over military age	180	3·68	128	3·34
Civilians, male	26	0·54	26	0·68
Civilians, female	1,505	30·80	1,066	27·88
	4,886	100 00	3,823	100 00

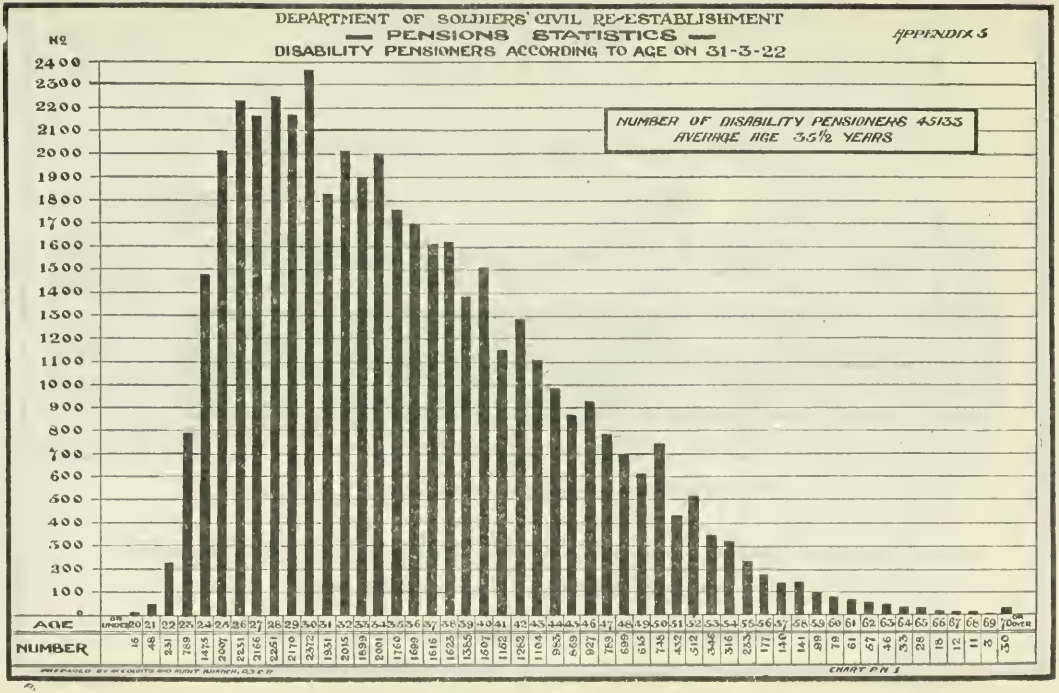
*(The term "ex-service men" includes nursing sisters as well as other ex-members of the Forces)

APPENDIX 1
DEPARTMENT OF SOLDIERS CIVIL RE-ESTABLISHMENT
CANADA
SALARIES EXPENDITURE BY MONTHS - APRIL 1919 TO DATE
Dollars
FISCAL YEAR 1919 - 20
FISCAL YEAR 1920 - 21
FISCAL YEAR 1921 - 22
FISCAL YEAR 1922 - 23
A M Je Jy A S O N D J F M
950,000
900,000
850,000
800,000
750,000
700,000
650,000
600,000
550,000
500,000
450,000
400,000
350,000
SALARIES OF MEMBERS OF STAFF ADDED FROM APRIL 1ST 1921
Prepared by Accounts & Audit Br. S.C.R. Ottawa.
CHART E-14


DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
CANADA
APPENDIX 2
— EXPENDITURES AND REFUNDS BY MONTHS —
Dollars
FISCAL YEAR 1920-21
FISCAL YEAR 1921-22
FISCAL YEAR 1922-23
A M Je Jy A S O N D J F M
5,000,000
4,800,000
4,600,000
4,400,000
4,200,000
4,000,000
3,800,000
3,600,000
3,400,000
3,200,000
3,000,000
2,800,000
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
CLOSE OF FISCAL YEAR—ITEMS KEPT OPEN UNTIL 30/9/23
EXPENDITURES
CLOSE OF FISCAL YEAR
REFUNDS
MONTH
YEAR
FISCAL YEAR 1920-21
FISCAL YEAR 1921-22
FISCAL YEAR 1922-23
Prepared by
Accounts & Audit Br
D.S.C.R. Ottawa
CHART E-5 Revised


APPENDIX 4
DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
CANADA
DAILY AVERAGE PATIENTS BY MONTHS — FROM MAY 1919 TO DATE
(PSYCHOPATHIC)
TOTAL
(TUBERCULOUS)
TOTAL
INSTITUTIONS
OUTPATIENTS
CLINICAL ATTENDANCES
PENSION EXAMINATIONS
NUMBER
MONTH
YEAR
1919
1920
1921
1922
CHART D-14


DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
— COST OF PENSIONS —
APPENDIX 3
FISCAL YEAR
1915-16
1916-17
1917-18
1918-19
1919-20
1920-21
1921-22
1922-23
$40,000,000
30,000,000
20,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
1,000,000
800,000
600,000
400,000
200,000
100,000
80,000
60,000
40,000
20,000
10,000
8,000
6,000
4,000
2,000
1,000
800
600
400
200
100
COST FOR LAST FOUR MONTHS ESTIMATED
INCLUDED UNDER S.C.R EXPENSE.
EUROPEAN WAR AND ACTIVE MILITIA
PENSIONS ADMINISTRATION
MILITIA LONG SERVICE PENSIONS
NORTH WEST REBELLION 1885 GENERAL
FENIAN RAID 1866
Logarithmic scale
Prepared by Accounts & Audit Br. D.S.C.R.


DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
— PENSIONS STATISTICS —
DISABILITY PENSIONERS ACCORDING TO AGE ON 31-3-22
APPENDIX 5
Nº
NUMBER OF DISABILITY PENSIONERS 45133
AVERAGE AGE 35½ YEARS
AGE
NUMBER
CHART P.N. 1

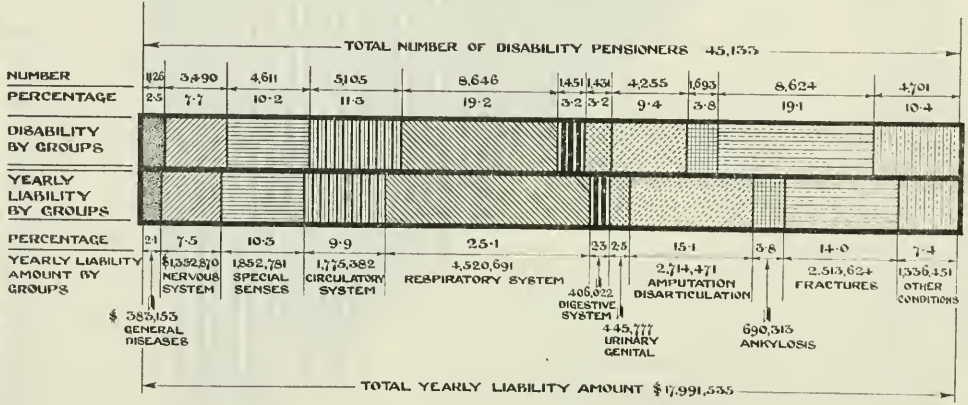
APPENDIX 6

DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT

CANADA

— DISABILITY PENSIONERS —

COMPARATIVE CHART SHOWING YEARLY LIABILITY BY DISABILITY GROUPS, AS AT MARCH 31st. 1922



Prepared by Accounts & Audit Br D S C R Ottawa

CHART PN 2

APPENDIX 1

Order in Council P.C. 580, dated the 10th March, 1922. Authority under which the Department of Soldiers' Civil Re-establishment may give treatment or training to former members of the Forces and may issue pay and allowances in connection therewith.

Whereas the Minister of Soldiers' Civil Re-establishment reports that by Order in Council of the 28th September, 1918 (P.C. 1993) and by Order in Council of the 24th February, 1919 (P.C. 387) certain authorities were granted to the Department of Soldiers' Civil Re-establishment in respect of medical treatment, vocational training, pay and allowances of former members of the forces and other matters;

And whereas the aforesaid Orders in Council have been amended by other Orders in Council;

And whereas further Orders in Council dealing with specific matters have also been passed from time to time and it is now necessary, in view of changed conditions since these Orders in Council were promulgated, that the provisions of those named hereafter be rescinded and certain of the authorities contained therein consolidated;

Therefore His Excellency the Governor General in Council, on the recommendation of the Minister of Soldiers' Civil Re-establishment, is pleased to order and it is hereby ordered that the provisions of the following Orders in Council be rescinded, viz:— Orders in Council rescinded

Passed under the War Measures Act, and re-enacted by Order in Council, P.C. 2324, dated the 21st November, 1919, passed under the Department of Soldiers' Civil Re-establishment Act:—

P.C. 1993, dated 28th September, 1918.
P.C. 387, dated 24th February, 1919.
P.C. 804, dated 12th April, 1919.
P.C. 814, dated 16th April, 1919.
P.C. 1846, dated 10th September, 1919.
P.C. 2131, dated 16th October, 1919.

Passed under the Department of Soldiers' Civil Re-establishment Act:—

P.C. 2327, dated the 21st November, 1919.
P.C. 2329, dated the 21st November, 1919.
P.C. 2301, dated the 21st November, 1919.
P.C. 2554, dated the 24th December, 1919.
P.C. 112, dated the 28th January, 1920.
P.C. 728, dated the 21st April, 1920.
P.C. 1549, dated the 8th July, 1920.
P.C. 2139, dated the 15th September, 1920.
P.C. 2687, dated the 6th November, 1920,

and that the following regulations and authorities be substituted therefor.

1. DEFINITIONS:

Former member of the Forces.

(a) *Former member of the Forces* means any person who has served in any of the naval, military or air forces of Canada during the late war;

(b) *Former member of the Imperial Forces* means any person who has served in the naval, military or air forces of the United Kingdom of Great Britain and Ireland during the late war;

(c) *Former member of the Dominion Forces* means any person who has served in the naval, military or air forces of any British Dominion or Colony other than the Dominion of Canada during the late war;

(d) *Former member of the Allied Forces* means any person who has served in the naval, military or air forces of any country allied or associated with the Government of Canada during the late war;

Pre-war resident.

(e) *Pre-war resident of Canada* means a former member of the Imperial, Dominion or Allied Forces who was domiciled in Canada on the 4th August, 1914, and has returned to Canada since the conclusion of his service in the said Forces.

Permanent Force.

(f) *Member or former member of the permanent forces of Canada* means any person who is serving or has served in any military or naval or air force of Canada and who does not require treatment for a disability attributable to service in the late war.

Disability attributable to service.

(g) *A disability attributable to service* means the loss or lessening of the power to will or to do any normal mental or physical act, recognized by medical authority to be the result of an injury suffered or a disease contracted (other than those resulting from vice or misconduct) on service; or to be the result of an injury or a disease either aggravated on service in a theatre of actual war, or aggravated by service outside a theatre of actual war.

Disability aggravated on or by service.

(h) *A disability aggravated on or by service* means an increase in the effect of a pathological condition which pre-existed enlistment.

Mental Disability.

(i) *A mental disability* means a persistent morbid condition of mind indicating a diseased condition of the brain, or nervous system, and characterized by deficiency of volitional and rational control necessitating the treatment and custodial care of the patient suffering from the same.

Military Service.

(j) Military service or service includes naval and/or air service, and is confined to service in the late war.

Department.

(k) *Department* means the Department of Soldiers' Civil Re-establishment.

(l) *Child* means a legitimate child of a former member of the forces, his step-child, his illegitimate child for whom he is paying maintenance or is supporting, his adopted or foster child, if he was maintaining such child prior to the appearance of his disability, and subject to the condition regarding an adopted or a foster child, any other person in regard to whom he stands in loco parentis.

Pension.

(m) *Pension* means a pension payable by the Government of Canada on account of a disability attributable to service in the late war, and includes addition to pension and temporary pension, but does not include long service or other service pension, or pension awarded in respect of a decoration.

(*n*) *Pensioner* means any former member of the forces who is at the time of making application for treatment or training in receipt of a pension payable by the Government of Canada. Pensioner.

(*o*) *Minor* means any former member of the forces who enlisted under the age of 18, and who, because of the late war suffered a severe interruption to his training or education. Minor.

(*p*) Treatment includes medical and surgical treatment and also includes dental services and the provision of prosthetic appliances. Treatment.

(*q*) *Medical authority* means the opinion of a medical practitioner acting on behalf of the Department, subject to the concurrence of the Director of Medical Services or supervising medical officers appointed by him. Medical Authority.

(*r*) *Dependents* means only such persons as are classed as dependents under the Pension Act, except where otherwise specifically stated herein. Dependents.

(*s*) *The late war* means the war which commenced on the 4th day of August, 1914, and was officially concluded on the 31st day of August, 1921. The late war.

(*t*) Terms indicating the masculine gender apply also to the feminine gender. Masculine and Feminine.

2. Any former member of the forces, who, in the opinion of medical authority, is suffering from a disability attributable to service shall be entitled to treatment and during treatment, if not suffering from a mental disability, to the allowances set forth in clause 4 hereof. Treatment persons eligible for.

3. The department may give treatment and hospitalization to any member or former member of the permanent force of Canada, the naval service of Canada, the air force of Canada or the Royal Canadian Mounted Police, for a disability, attributable to service in any of the said forces or services, other than service in the late war, on such terms as may be arranged from time to time between the department and the Department of Militia and Defence or the Department of the Naval Service or the Air Force of Canada, or the Royal Canadian Mounted Police. Treatment of Permanent Force, etc.

4. (1) The per diem allowances set forth in the schedule hereto attached and marked "A" (hereinafter referred to in this clause as the "allowances") shall, subject to the conditions set forth in paragraph (2) to (16) of this clause, be payable monthly in arrears to or in respect of a former member of the forces while he is undergoing treatment for a disability attributable to service which prevents him from obtaining or continuing employment unless the disability for which treatment is being given is a mental disability in regard to which custodial care is indicated. Treatment Allowances.

(2) The allowances are inclusive of clothing allowances. Clothing Allowances.

(3) The allowances are payable in respect of the rank or acting rank held by the former member of the forces in respect of which he was in receipt of pay and allowances at the time of his retirement or discharge or the rank at which he is pensioned, whichever is the higher. Acting Rank.

Medical and Dental Officers.

(4) In the cases of medical and dental officers where the pay of rank under the Department of Militia and Defence would be $1 per day in excess of the allowances, they shall be increased by $1 per day.

Manner Allowances payable.

(5) The allowances shall be payable in the following manner:—

(a) Single man in hospital: $17 per month, the balance to be held by the department until the completion of treatment, provided that the department may, at its discretion, authorize the payment out of the man's credit balance of any sums necessary for the payment of insurance premiums or for other justifiable purposes.

(b) Men at home: the full allowance authorized.

(c) Married men in hospital or men in hospital with dependents in respect of whom allowances are payable: to man, $17 per month; to wife or dependent, full dependent's allowances authorized, the balance to be held by the department until the completion of treatment, provided that the department may at its discretion authorize the payment out of the man's credit balance of any sums necessary for the payment of insurance premiums or for other justifiable purposes.

Allowances for widowers.

(6) If a widower has children and it is necessary in order to keep the family together for him to employ a person for full time to care for them, he may, at the discretion of the department, be paid as a married man with children.

Separation of husband and wife or desertion.

(7) If a former member of the forces undergoing treatment is separated from his wife the following procedure shall be followed:

(a) Where desertion, within twelve months prior to the date of the commencement of treatment, on the part of the man has been proved to the satisfaction of the department the allowances for a married man with or without children may be payable at the discretion of the department. If the desertion took place at an earlier date no allowances shall be payable in respect of the wife or children unless it is considered by the department after full investigation of the facts, that an injustice would be done by withholding such allowances.

(b) Where desertion on the part of the wife has been proved to the satisfaction of the Department, the man shall be paid as a single man or if he is maintaining his children, as a widower with children no allowances shall be payable to the wife.

(c) If a man and wife have mutually agreed to separate or if a separation order or divorce has been effected, the man shall be paid as a single man, when no alimony or amount in lieu of alimony has been arranged or is being paid by the man. When alimony or amount in lieu thereof has been agreed upon or if the man is voluntarily making an alimentary allowance he shall be paid as a single man and the amount payable to the wife or former wife shall be deducted from his allowances provided that if the amount payable to the wife or former wife shall exceed the difference between $25 per month and the amount payable to a single man the department shall pay to the wife or former wife any such

excess. If the man is also supporting his children apart from his wife he shall, in addition, be paid in respect of the children, at the rate of 49 cents per day for the first child, 39 cents per day for the second child, and 33 cents per day for the third and each additional child. In no case shall the total allowances payable exceed those set forth herein for a married man with wife only if there are no children, or for a married man with children if there are no children.

Man with dependent or dependents.

(8) "Man with dependent or dependents" means a widower with a child or children, a single man with a dependent parent or parents and or with a dependent brother or sister or dependent brothers or sisters.

Children in excess of six.

(9) Subject to paragraph (12) of this clause, when there are more than six children or dependents the dependents' allowances shall be increased by 33 cents per day in respect of each child or dependent in excess of six.

Dependent parents.

(10) If a married man is supporting a parent or parents, or a brother or brothers, or a sister or sisters, any such extra dependent may, for the purpose of receiving allowances, be regarded as a child.

Proof of dependency.

(11) Dependency must in all claims for allowances in respect of parents or brothers or sisters or partial dependents be proved to the satisfaction of the department.

Dependents of Officers.

(12) No allowances in respect of children or other dependents (other than wife) shall be payable to ranks of Captain (military), Lieutenant (naval) and above, provided that in the case of a single officer where separation allowance was issued during service to his dependent parent and dependency has continued, the department may, at its discretion, pay the allowances set forth herein for a married officer.

Partial dependents.

(13) The allowances for partial dependents are maximum. Lesser allowances may be paid at the discretion of the department.

Deduction of pension from allowances.

(14) If the former member of the forces is a pensioner and the pension is less than the amount of allowances, there shall be deducted from each payment of such allowances the amount of pension to which he or his dependents may be entitled for the period for which he is undergoing treatment, such deductions being made from the amounts payable to the man himself or his dependents or both at the discretion of the department, provided that if the pension is greater than the amount of the allowances, the man and his dependents shall be paid out of his pension an amount equivalent to the said allowances in lieu thereof.

Man and wife undergoing treatment.

(15) When a man and wife, both former members of the forces, are undergoing treatment at the same time, the allowances payable shall be as to two single former members of the forces in accordance with the rank of each. In cases where there are children or other dependents, if the allowances payable to a married man with children or other dependents based on the rank of the man, would be in excess of those payable in respect of two single former members of the forces in accordance with the rank of each, they shall be substituted therefor, but if they would be less, no extra allowances in respect of children or other dependents shall be payable.

Allowances when residing outside of Canada.

(16) None of the allowances shall apply to or in respect of former members of the forces who are residing in, and require medical treatment in any country outside of Canada with the Government of which the department has a reciprocal arrangement under which former members of the forces are to receive the same allowances while undergoing medical treatment as former members of the forces of the said country.

Continuation of Allowances one month after conclusion of treatment.

5. The payment of allowances authorized by clause 4 hereof may, at the discretion of the department, be continued for one month after the completion of treatment of a former member of the forces, provided that (*a*) in the opinion of the department his conduct, while undergoing treatment, has been satisfactory, (*b*) his treatment has occupied a longer period than two months, (*c*) he is not entitled to any payment of war service gratuity, (*d*) in the opinion of the department such continuation of payment is necessary to assist him in obtaining employment or to tide him over a period of temporary difficulty or convalescence.

Out-Patients, Class 2.

6. When a former member of the forces not in receipt of allowances under clauses 4, 11 or 20, whose disability does not prevent him from obtaining or continuing employment, requires out-patient treatment or examination, he shall be entitled to receive such treatment or examination from the department and to receive such medicine as he may need. He shall not be entitled to receive the allowances set forth in clause 4 hereof, but if attendance for such treatment or examination causes such former member of the forces a monetary loss he shall, on producing a certificate from his employer, other than himself, that his wages are stopped or other evidence satisfactory to the department, be entitled at the discretion of the department to be reimbursed for such loss up to, but not exceeding, one dollar ($1) for each attendance for treatment or examination, together with reasonable travelling expenses, provided that no amount shall be paid in any case when attendance is merely for the purpose of obtaining medicine.

Men refusing to undergo treatment, Misconduct.

7. If a medical officer of the department reports that a former member of the forces should undergo treatment, and such former member of the forces unreasonably refuses to undergo such treatment or if by any reason of the misconduct of such former member of the forces while undergoing treatment it is necessary at the discretion of the department to discontinue this treatment, the pension to which he or his dependents would otherwise be entitled may, at the discretion of the Board of Pension Commissioners for Canada, be reduced or refused and any War Service Gratuity to which such former member of the forces and his dependents at the time such report is received, or such treatment is discontinued by the department may be entitled, may be withheld until such former member of the forces has undergone and completed the treatment so recommended or such misconduct has been excused. The decision as to what under the provisions of this clause constitutes unreasonable refusal or misconduct shall rest with the department.

Interest on credit balances.

8. The department may pay interest at the rate of five per cent per annum on the amounts of allowances or other moneys withheld, under the provisions of this Order in Council, or any other enabling authority, from former members of the forces or pre-war residents of

Canada who have been on the strength of the department for treatment for a period of three months or longer, such interest to be credited on all open accounts of such former members of the forces as at the 30th June and the 31st December in each year, or at the date of completion of treatment, provided that no interest shall be payable by the department on balances which are withheld, owing to failure on the part of the former member of the forces to claim the amount due or to furnish the department with his proper address, or the proper address of his dependents, or owing to the disturbed condition of the country in which the dependents reside.

Treatment for mental disabilities.

9. (1) The department shall have authority to operate such hospitals for psychiatric treatment of persons suffering from mental diseases as may be deemed necessary and may make such arrangements with the provincial governments in regard to such hospitals as may be required and may also, when it is recognized by medical authority that the department is liable for maintenance, make arrangements with the provincial governments for the care and treatment of former members of the forces who are not mentally responsible in provincial institutions for the treatment of mental diseases.

Classification of mental disabilities.

(2) Former members of the forces who are not mentally responsible may be divided into five classes as follows:—

Mental disabilities Class (A)

(A) Men who were retired or discharged from military service owing to a mental disability entirely attributable to service or who since retirement or discharge have developed a mental disability which is recognized by medical authority as entirely attributable to service;

Mental disabilities Class (B).

(B) Men who were retired or discharged from military service owing to a mental disability only aggravated on or by service or who since retirement or discharge have developed a mental disability which is considered by medical authority to have been aggravated on or by such service;

Mental disabilities Class (C).

(C) Men who were retired or discharged from military service owing to a mental disability not in any way attributable to nor aggravated on or by such service;

Mental disabilities Class (D).

(D) Men who were retired or discharged from military service as a result of a disability not mental and who have been pensioned or are undergoing medical treatment for such disability and who, while on pension, or while undergoing such treatment, have developed a mental disability not attributable to service, for which treatment in a psychiatric institution is necessary;

Mental disabilities Class (E).

(E) Men who were retired or discharged from military service with all systems normal or without pensionable disability and who have subsequently developed a mental disability which is not attributable to service.

Division of classes.

Each of these classes may be subdivided as follow:—

(I) With dependents.

(II) Without dependents.

Classes (A) and (B).

Classes (A) and (B):

(I) With dependents.

(*a*) During treatment the former member of the forces shall be maintained by the department, and his dependents shall be paid by the department a sum per month equal to the amount of pension which would be payable to them if he had died on active service.

(*b*) Should he be certified to have recovered from his mental disability and to be entirely rational and responsible, the allowances which would have been paid to him and his dependents, had he been receiving treatment for a disability other than mental, shall subject to sub-paragraph (III) of this paragraph be computed and there shall be deducted therefrom the amounts which have been paid to or in respect of his dependents and the amounts which have been paid for or in respect of clothing and comforts and other expenses for the man himself, other than maintenance, and the balance shall be paid to him in one sum or spread over a period at the discretion of the department, provided that no amounts, other than those set forth in section (*a*) of this sub-paragraph, shall be payable to his dependents or his estate, should he die while undergoing treatment.

(II) Without dependents.

(*a*) During treatment the former member of the forces shall be maintained by the department.

(*b*) Should he be certified to have recovered from his mental disability and to be entirely rational and responsible, the allowances which would have been paid to him had he been receiving treatment for a disability other than mental, shall, subject to sub-paragraph (III) of this paragraph, be computed and there shall be deducted therefrom the amounts which have been paid for or in respect of clothing and comforts and other expenses than maintenance, and the balance shall be paid to him in one sum or spread over a period at the discretion of the department, provided that no amounts shall be payable to his estate, should he die while undergoing treatment.

III. If a former member of the forces was undergoing treatment for a mental disability on the 1st September, 1920, and subsequently recovers as provided in sub-paragraphs (I) (*b*) and (II) (*b*) of this paragraph the amount to be payable to him in respect of the period prior to the 1st September, 1920, shall be arrived at in accordance with the provisions then extant under the authority of Order in Council P.C. 1993, 1918, prior to its amendment by Order in Council P.C. 2139, 1920.

Class (C). *Class (C).*

If the former member of the forces was transferred to the Department by the Department of Militia and Defence or the Department of the Naval Service immediately on retirement, or discharged from the forces, he shall, during treatment, be maintained by the department. No allowances shall be paid to him or to his dependents during treatment and no amounts shall be paid to him should he recover, provided that the department may issue, free of charge, such clothing and comforts as at its discretion may be deemed necessary for such patient while undergoing treatment, provided also that if the former member of the forces has recovered sufficiently to have been discharged to pass under his own control, or has been discharged to pass under the care or jurisdiction of his relatives, should such member of the forces at any future date suffer a relapse, he shall be considered under Class E, and not under Class C.

Class (D). Class (D)

(*a*) Should a former member of the forces who is in receipt of pension for a disability other than a mental disability, develop a mental disability not attributable to service, and for which mental disability treatment is required, he may, at the discretion of the department, be placed in a departmental institution. If such former member of the forces is placed in a departmental institution, the cost of maintenance up to $30 per month may, at the discretion of the Board of Pension Commissioners and the department, be paid from such payments of pension or other payments, as the former member of the forces may be entitled to. If such pension, or other payments, is less than $30 per month, the entire amount may be paid to the department. The above payments are in no circumstances to be made from pension, or other payments, payable in respect of his dependents. Should he be placed in a provincial institution, there shall be no departmental responsibility.

(*b*) Should a former member of the forces who is receiving treatment from the department for a service disability other than mental develop a mental disability not attributable to service, which requires treatment in a psychiatric institution, the department may transfer such former member of the forces to one of its hospitals for the treatment of mental diseases or to a provincial institution. If treatment for the service disability has not been completed allowances in respect of the same may be continued, but if treatment has been completed the eligibility of the former member of the forces for pension shall be determined and in the event of pension being indicated, disposition shall be made as under subsection (*a*) of this paragraph.

Class (E) Class (E).

Should a former member of the forces who was retired or discharged with all systems normal or without pensionable disability, subsequently develop a mental disability which is certified by medical authority as not attributable to service, the department shall cause such former member of the forces, if in a hospital under the observation of the department, to be transferred to a provincial institution or to the custody of his friends, no responsibility being accepted by the department for maintenance or otherwise.

(3) If a legal guardian or curator has been appointed to administer the affairs of a former member of the forces suffering from a mental disability and if the department has been relieved of responsibility for his care and maintenance, he may be discharged to the care of such guardian, when his case shall be considered for pension by the Board of Pension Commissioners for Canada, but neither he nor his guardian shall be entitled to any payments under the provisions of subsections (I), (II) and (III) of paragraph (2) of this clause, until he has recovered from his mental disability. Appointment of Guardians.

(4) When a former member of the forces classified (A) or (B) who has been undergoing treatment for a mental disability has sufficiently recovered to be allowed temporarily to pass under his own control or that of his friends, the allowances provided for an outpatient Class I (Clause 4) may, at the discretion of the department, be paid to him during a period of parole, provided that he shall undergo re-examination at intervals of not longer than three months. Recovery of Class (A) or (B) Patients.

When he has recovered sufficiently to pass under his own control without departmental oversight and has been discharged from treatment by the department, his case shall be considered for pension by the Board of Pension Commissioners for Canada, and such payments as may be due to him by the department shall be made to him in accordance with the provisions of subsections (I), (II) and (III) of paragraph (2) of this clause.

Allowance for Comforts, etc.

(5) The department may issue an allowance to or in respect of a former member of the forces receiving treatment in a departmental hospital for a mental disability and may arrange with the superintendents of provincial institutions for an allowance to be made to a former member of the forces receiving treatment at the expense of the department in such institutions for the purpose of purchasing clothing, tobacco and other comforts, or any payments approved by the department except in the case of provincial institutions where issue of clothing, tobacco and other comforts is included in the charge for maintenance, and the amount of such allowance shall be charged against the former member of the forces on the books of the department and shall be deducted from any amounts payable to him should he recover, but in the event of his non-recovery it shall be written off, provided that such allowance shall not exceed $3 per month, except to men in Classes (A) and (B) when it shall not exceed $10 per month.

Training of Disabled Men.

10. (1) Any former member of the forces, who, in the opinion of medical authority, is suffering from a disability attributable to service which in the opinion of the department prevents such former member of the forces from returning to his previous trade or principal occupation, shall be entitled to training for a new occupation in accordance with the regulations of the department and during training to the allowances set forth in clause 11 thereof, provided that no former member of the forces shall be entitled to such training unless application for the same was made on or before the 1st February, 1920, or three months from the date of retirement or discharge from the naval or military forces, whichever is the later, or three months from the completion of treatment granted by the department when such treatment has been granted immediately subsequent to retirement or discharge, or, in the case of a former member of the forces not previously eligible requiring treatment through a development of a disability attributable to service, within three months of the conclusion of such treatment.

Training of Minors.

(2) Any minor who at the discretion of the department, appears to be eligible may be granted training in one of the department's training classes in a high school, college, university, business college or industrial establishment for such period as may be considered necessary by the department and may during training be paid the allowances set forth in clause 11 hereof, provided:—

Limit of Allowances to Minors.

(*a*) That the allowances payable to such minors shall not exceed eight times the monthly allowances herein set forth for men undergoing training.

Lesser Allowances may be paid to Minors.

(*b*) That in cases where the payment of the allowances hereby authorized would not appear to be justified, the department may, at its discretion, pay such lesser allowances as may be warranted by the conditions under which training is provided.

(*c*) That the department may hold a portion of any allowances payable and pay the same to the minor at the conclusion of his course or later, if at the discretion of the department, it is deemed advisable so to do. Allowances to Minors may be held back.

(*d*) That application for training was made prior to the 1st February, 1920. Limit of time for Application.

11. (1) The allowances payable to or in respect of a former member of the forces while he is undergoing training by the department shall, subject to the conditions set forth in paragraph (2) to (10) of this clause be as follows, and shall be paid monthly in arrears:— Training Allowances.

Amount payable	Payable to man	Payable to wife	Payable to or in respect of dependents	Total
	$	$	$	$
(a) Single man without dependents	75			75
(b) Man with wife and no other dependents	50	50		100
" and 1 child	50	65		115
" and 2 children	50	77		127
" and 3 "	50	87		137
(c) Widower with 1 child	75		20	95
" 2 children	75		30	105
" 3 "	75		40	115
(d) Man without wife or children but with parent or parents or brother or sister or brothers or sisters wholly or mainly dependent on him.				
with one parent only	75		25	100
" and 1 brother or sister	75		40	115
" and 2 brothers or sisters	75		52	127
" and 3 "	75		62	137
with two parents and no brothers or sisters	75		40	115
" and 1 brother or sister	75		52	127
" and 2 "	75		62	137
" and 3 "	75		72	147
with 1 orphan brother or sister	75		20	95
" 2 orphan brothers or sisters	75		30	105
" 3 " "	75		40	115
(e) Man without wife or children but with a person or persons partially dependent on him	75		25	100

(2) For children or brothers or sisters in excess of three, $10 each per month shall be payable.

(3) The department may, at its discretion, pay to a guardian or other person having charge of any child or children or brother or brothers or sister or sisters referred to in this clause, such portion of the allowances set forth in this clause as it may deem necessary and may deduct the amount so paid from the allowances payable to the former member of the Forces or from the allowances payable to his wife or other dependent as the circumstances of the case may warrant. Payments in respect of dependents may be diverted.

(4) The dependents' allowances as per subsections (*c*), (*d*) and (*e*) of paragraph (1) of this clause shall, subject to paragraphs (5) and (6) of this clause, be the maximum allowances payable to or in respect of such dependents, but if at the discretion of the department lesser amounts are considered sufficient for the maintenance of such dependents the department may award such lesser amounts. Dependents' Allowances are maximum

Deduction for subsistence when living in

(5) In cases where a former member of the Forces while undergoing training by the department, is subsisted by the department, the sum of $30 per month (to cover cost of such subsistence) shall be deducted from the allowances of such former member of the forces, provided that when such former member of the forces has a dependent or dependents, to or in respect of whom allowances are payable under this clause, and with whom he is residing at the commencing of his training by the Department and owing, to his undergoing training is unable to continue to reside with such dependent or dependents, or finds it necessary, with the approval of the department to remove such dependent or dependents to another place of residence, the sum of $22 only shall be deducted and the allowances payable to or on account of such dependent or dependents may at the discretion of the department be increased by $8 per month.

Additional allowance when living away from or having to move dependents.

(6) In cases where a former member of the Forces who while undergoing training is not subsisted by the department, and who has a dependent or dependents, to or in respect of whom allowances are payable under this Order in Council with whom he was residing at the commencement of his training, is owing to his undergoing training, unable to continue to reside with such dependent or dependents, or, finds it necessary, with the approval of the department, to remove such dependent or dependents to another place in order to continue to reside with them the allowances payable for such former member of the Forces under this Order in Council shall be increased by an amount of $8 per month, and the allowances payable to or on account of such dependent or dependents shall also be increased by an amount of $8 per month.

Men married during training.

(7) If a former member of the forces is unmarried or a widower at the time his training is approved by the department and marries during the progress of his training, the allowances for a married former member of the Forces shall be paid to him from the date of his marriage, or in the event of the interruption of his training on account of his marriage, from the date of the resumption of his training, instead of the allowances he or his dependents, if any, were receiving prior to his marriage.

Pension discontinued during training.

(8) No payments of pension shall be made while the allowances set forth in this clause are payable and if any payments of pension are made the department shall deduct the same from the allowances set forth in this clause.

Allowances include car fares and meals.

(9) The allowances set forth in this clause shall include expenses of transportation to and from places of training and meals except as provided in paragraph (5) of this clause and in clause 20 hereof.

Continuation of allowances one month after completion training.

(10) The payment of allowances authorized by this clause shall be continued for one month after the completion of training of a former member of the Forces other than a minor, provided that (*a*) in the opinion of the department his conduct while undergoing training has been satisfactory, (*b*) his training has occupied a longer period than two months, (*c*) in the opinion of the department such continuation of payment is necessary to assist him in obtaining employment or to tide him over a period of temporary difficulty.

12. If a former member of the forces who is undergoing training by the department requires institutional treatment during the period of his training, his training allowances and the allowances of his dependent or dependents may be continued during the period of such institutional treatment, subject to deduction as set forth in paragraph (5) of clause 11 hereof provided that the payment of such allowances by the department during the period of such treatment shall be suspended if the treatment is made necessary by misconduct, provided also that at any time the former member of the forces may be transferred from training allowances to treatment allowances at the discretion of the department. Institutional treatment while undergoing training.

13. If, to eliminate unnecessary delay, a former member of the forces is taken on the strength of the department for training by a Disabled Soldiers' Training Board and his application is afterwards rejected, he shall be paid the allowances set forth in clause 11 hereof for the period he has been in training, except in cases where wilful misrepresentation has been discovered. Payment of allowances when rejected.

14. When a former member of the forces has been found eligible for training, the department shall, at its discretion, where it is considered desirable in the interests of the trainee so to do, and as far as the same may be practicable, place him for training in an industry under an agreement with the employer as to wages on an ascending scale, and the department shall pay the difference between the wages or other remuneration received by him in such industry and the allowances set forth in clause 11 hereof, provided that the total sum payable by the department to a trainee under this authority including any amounts he or his dependents may previously have received as training allowances under the authority of Order in Council P.C. 387, 1919, or any other Order in Council shall not exceed a total of eight times the monthly allowances which would be payable to him and his dependents under clause 11 hereof, were he undergoing training in one of the department's schools or otherwise; provided also that when a trainee receives from the firm or company under whom he is being trained in accordance with these provisions a monthly wage or other remuneration equal to the monthly training allowances, his course shall be considered as completed and all payments by the department shall cease. Training in an industry.

15. (1) The department, at its discretion, may advance by way of loan to any former member of the forces who has received training on account of a disability attributable to service and who is in need of the same, a sum not exceeding $500 for the purchase of tools and equipment necessary to establish him in his new occupation, such loan to be repayable within five years from date of issue without interest. Vocational Loans to Trainees.

(2) The department, at its discretion, may advance by way of loan to any former member of the forces who has been disabled and who is in need of the same, a sum not exceeding $500 to enable him to pursue any course of training or education which was substantially interrupted by war service, provided (*a*) that the disability from which the former member of the forces is suffering was of such a nature as to make such assistance necessary, (*b*) that he is not entitled to or has not taken training under the department, and Vocational Loans for Education.

(c) that he shall not be eligible for training subsequent to the granting of the loan; any such loan to be repayable within five years from date of issue without interest.

Decision as to Dependency.

16. The decision whether or not a person is dependent upon a former member of the forces shall rest with the department and any allegation of dependency shall be corroborated by such evidence as may, from time to time be required by the department.

How treatment and training allowances payable.

17. The allowances payable while he is undergoing treatment or training by the department for a former member of the forces, or for his wife, shall be paid direct to him or her, unless at the discretion of the department it is deemed advisable to pay such allowances or any part thereof at any time to such other person as the department may determine and the allowances payable while he is undergoing treatment or training by the department for the dependent or dependents of a former member of the forces other than his wife, or any part thereof at any time shall be paid to such a person as the department may determine.

Age Limit of Children.

18. No allowances shall be paid under authority of this Order in Council for any child or brother or sister of any former member of the forces who, if a boy is over the age of 16, or, if a girl is over the age of 17 years, provided, that if the child or brother or sister is unable owing to physical or mental infirmity to provide for its maintenance the allowances may be continued for as long as the circumstances of the case warrant payment by the department, provided also that no allowances shall be paid in respect of a child or brother or sister after the marriage of such child or brother or sister.

Accidents to Trainees.

19. Former members of the forces undergoing training by the department shall, while in receipt of allowances from the department, be considered employees thereof and in case of injury shall be entitled to the full benefits of compensation provided by subsections 1 and 2 of section 1 of the "Act to provide compensation where employees of His Majesty are killed or suffer injury while performing their duty" (Statutes of Canada 1918, Chapter 15), provided that the department shall be authorized to carry out such investigation as may be necessary to safeguard the interests of the Government in this regard, any compensation awarded may be paid by the department or by the Department of Finance.

Travelling Allowances for Pension Examination Repairs to Orthopaedic Appliances or Vocational Interview.

20. (1) When a former member of the forces resident in Canada, not in receipt of allowances under clauses 4 or 11 hereof, is directed by an officer or representative of the department to report at an institution or other place for examination in regard to pension or for repairs to or replacement of an artificial limb or other orthopædic appliance, or is directed by a vocational officer of the department to report at a specified place for the purpose of an interview, such former member of the forces may, subject to paragraph (3) of this clause be granted the following allowances to cover out-of-pocket expenses and loss of time from work, provided that the time occupied shall not be longer than ten days, except in the case of a former member of the forces who owing to remote distance or lack of travelling facilities, cannot reach the place of appointment in less than 48 hours, in which case he may be paid for fourteen days:—

(A) Return transportation, first class, with sleeping berth if necessary.

(B) Five dollars ($5) per day of 24 hours for actual time occupied in travelling by the most direct route to and from, and for actual time detained in the town where institution, place of examination or other place to which the former member of the forces is directed to report is situated, made up as follows:—

7 p.m. to 1 a.m.	$1.00
1 a.m. to 7 a.m.	1.00
7 a.m. to 1 p.m.	1.50
1 p.m. to 7 p.m.	1.50

Provided (*a*) that if sleeping berth has been provided, he shall not be paid the allowances payable for the period between 7 p.m. and 7 a.m.; (*b*) that if he is furnished with subsistence (bed and maintenance) at an institution or other place, he shall be paid at the rate of $2 per day reckoning from 7 a.m. to 7 p.m.; (*c*) that if he is offered subsistence but prefers to stay with friends, he shall be paid at the rate of $3 per day of 24 hours; (*d*) that if the institution, place of examination or other place to which such former member of the forces is directed to report is in the same town as, or is contiguous to, his place of residence and absence from home over night is not required, he shall be paid his out-of-pocket expenses only and shall not be paid for loss of time from work unless he can produce a certificate from his employer that his wages are stopped during his absence, in which case he shall be paid his actual loss plus his out-of-pocket expenses or the amount set forth for the period between 7 a.m. and 7 p.m. whichever is the lesser.

Travelling allowances for observation or treatment.

(2) A former member of the forces resident in Canada who is directed by an officer or representative of the department to report at an institution or other place for observation or treatment other than for repairs to or replacement of an artificial limb or other orthopædic appliance, may, subject to paragraph (3) of this clause, be granted the following allowances to cover out-of-pocket expenses and loss of time from work:—

(A) Return transportation, first class, with sleeping berth if necessary.

(B) Five dollars ($5) per day of 24 hours for actual time in travelling by the most direct route to and from the institution or other place to which such former member of the forces is directed to report, made up as follows:—

7 p.m. to 1 a.m.	$1.00
1 a.m. to 7 a.m.	1.00
7 a.m. to 1 p.m.	1.50
1 p.m. to 7 p.m.	1.50

Provided (*a*) that if sleeping berth has been provided, he shall not be paid the allowances payable for the period between 7 p.m. and 7 a.m.; (*b*) that if the institution or other place to which such former member of the forces is directed to report is in the same town as, or is contiguous to his place of residence and absence from home over night is not required, he shall be paid his actual out-of-pocket expenses only and shall not be paid for loss of time from work unless

he can produce a certificate from his employer that his wages are stopped during his absence, in which case he shall be paid his actual loss plus his out-of-pocket expenses or the amount set forth for the period between 7 a.m. to 7 p.m. whichever is the lesser; (c) that no reimbursement of expenses incurred shall be made in respect of repairs required to orthopædic boots or any major or minor orthopædic appliances which can be forwarded to the department by mail or express.

(c) for any period he is detained by the department for observation or treatment other than for repairs to or replacement of an artificial limb or other orthopædic appliance, the allowances as set forth in clause 4 hereof.

When transportation only is payable.

(3) If a former member of the forces, by himself or through any person acting on his behalf, makes a claim for medical treatment, for what he considers to be a disability attributable to service and if, owing to such claim he is directed by an officer or a representative of the department to report at any place for examination, observation or treatment, he shall only be entitled to return transportation and shall not be entitled to any other of the allowances set forth in this clause unless it is found that the disability from which he is suffering is attributable to service, and that treatment for the same is required, or unless it is considered by the department to be to its advantage to retain him for the purpose of clearing up his case.

Unauthorized reporting for examination observation or treatment.

(4) If a former member of the forces, who has not been directed by an officer or representative of the department to report for examination, observation or treatment, reports at his own expense he shall not be entitled to any of the allowances set forth in this clause unless in the case of a claim for pension or increased pension the claim is successful or unless in the case of a claim for observation or treatment it is found that the disability from which he is suffering is attributable to service and that treatment for the same is required or unless it is considered by the department to be to its advantage to retain him for the purpose of clearing up his case.

Remaining at institution for repairs to orthopaedic appliance.

(5) Should it be necessary for a former member of the forces not in receipt of allowances under clauses 4 or 11 hereof, to remain at an institution for repairs to his artificial limb or other orthopædic appliance or should the repairs to his artificial limb or other orthopædic appliance take such time as to keep him from his home or prevent him from following any remunerative occupation for longer than ten days, he shall, after the tenth day be paid the amount of allowances set forth in clause 4 hereof, less the amount of pension, if any, payable to or in respect of himself or his dependents.

Travelling expenses of man undergoing treatment or training.

(6) When a former member of the forces who is undergoing treatment or training in Canada and is in receipt of allowances under clauses 4 or 11 hereof is directed by an officer of the department to report at an institution or other place for examination, or for treatment, or for repairs to or replacements of an artificial limb or other orthopædic appliance, or for an interview, his allowances, subject to clause 12 shall continue and he shall be entitled to receive:—

(a) Transportation, first class, with sleeping berth if necessary, between the points of movement. (b) Meals in transit, if necessary, $1 each. (c) Payment of any other reasonable

expenses, which he may incur, provided such expenses are authorized and approved by an officer of the department prior to their being incurred.

Travelling expenses returning home after treatment or training.

(7) When a former member of the forces who has undergone treatment or training and has been in receipt of allowances for such, has completed his treatment or training and is returning to his home or customary place of residence, he shall be entitled to receive:—

(*a*) Transportation, first class, with sleeping berth, if necessary, to the point from which he reported for treatment or training. (*b*) Meals in transit, if necessary, at $1 each. (*c*) Payment of such other reasonable expenses which he may incur, provided such expenses are authorized and approved by an officer of the department prior to their being incurred.

Travelling Allowances outside of Canada.

(8) When a former member of the forces is not resident in Canada, he shall be paid such travelling and out-of-pocket expenses for the services covered by this clause as the department may at its discretion from time to time determine, provided that where possible, the amount payable and the conditions of payment shall be those prevailing between the government of the country, in which the former member of the forces is residing, and the former members of the forces of the said country.

Power to make Regulations regarding administration, discipline, deductions and over-payments.

21. The department shall have power to make regulations respecting the administration and discipline of, and allowances payable to, a former member of the forces while undergoing treatment or training by the department and the allowances payable to or in respect of his dependent or dependents and all deductions from or cancellations of such allowances for the purpose of discipline, or recovery of over-payments of allowances or pension, and to require that before becoming entitled to treatment or training by the department a former member of the forces shall sign a document agreeing while undergoing treatment or training to submit to all such regulations.

Agreements with other countries re treatment and training in Canada.

22. The department may enter into agreements with the British Government or with the governments of any of His Majesty's Dominions, for the treatment and training of former members of the Imperial or Dominion forces, who have been retired or discharged therefrom and who may now or hereafter be resident in Canada or the United States of America whether they were pre-war residents of Canada or not, and may render accounts for the cost of such treatment and training, and if authorized by the said governments so to do, may, at the expense of the said governments pay to such persons and their dependents during the period of such treatment or training, the allowances payable to former members of the forces as herein provided or such other allowances as may be agreed upon by the said governments, and the department may, with the approval of the Governor General in Council, enter into similar agreements with the Governments of His Majesty's Allies or Associates in the late war in respect of former members of the Allied forces.

Agreements with other countries re treatment and training outside of Canada.

23. The department may enter into agreements with the British Government or the Governments of any of His Majesty's Dominions for the treatment and training of former members of the forces who have been retired or discharged therefrom and who may now or hereafter be stationed or resident outside of Canada and may pay the cost of such treatment or training, and may, subject to such arrange-

ments, pay to such persons and their dependents during the period of such treatment or training, the allowances set forth herein, or such other allowances as may be agreed upon between the parties to any agreement entered into, and the department may, with the approval of the Governor General in Council, enter into similar agreements with the Governments of His Majesty's Allies or Associates in the late war.

Agreements with other countries re treatment and training of Imperial and other forces outside of Canada.

24. The department may, on request from the British Government or the Governments of any of His Majesty's Dominions or Allies or Associates in the late war, arrange for the treatment or training, in the United States of America or any other country, of any persons who served in the Imperial, Dominion, or Allied forces, and, on behalf and at the expense of the said Governments, may pay the cost of such treatment or training, and, on behalf and at the expense of the said Governments may pay to such persons and their dependents during the period of such treatment or training such allowances as may be agreed upon between the parties to any agreement entered into or understanding reached.

Departmental and B.P.C. decisions final.

25. In any matters which are left to the discretion of the department, the decision of the department shall be final, and in any matters which are left to the discretion of the Board of Pension Commissioners for Canada the decision of the said Board shall be final.

To whom Order in Council does not apply.

26. The provisions of this Order in Council shall not, unless the department otherwise directs, extend and apply to any former member of the forces or former member of the Imperial, Allied or Dominion forces who:—

(*a*) Has been cashiered or dismissed the service by sentence of Court Martial;

(*b*) has been deprived of his commission or warrant by reason of misconduct;

(*c*) has been called upon to retire or to resign his commission or warrant by reason of misconduct;

(*d*) has been discharged having been sentenced to be discharged with ignominy, or in the Naval Forces with or without disgrace;

(*e*) has been discharged having been sentenced to penal servitude or having been sentenced by Court Martial to imprisonment for two years or more;

(*f*) has been discharged during his service having been convicted by the civil power of an offence punishable by imprisonment for more than two years committed either before or after enlistment; or

(*g*) has been discharged for misconduct;

Date Order in Council operative.

27. His Excellency the Governor General in Council is further pleased to order that the provisions of this Order in Council shall be operative from the first day of April, 1922.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

SCHEDULE A

PAY AND ALLOWANCES FOR FORMER MEMBERS OF THE FORCES WHO ARE ON THE STRENGTH OF THE DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT FOR MEDICAL TREATMENT IN CANADA AND THE UNITED STATES

	All ranks below sergeant (Mil.) and petty officers (Naval)			Sergeants (Military) Petty Officers and equivalent ratings (Naval)			Squadron Batt or Coy. Q.M. Sergeant (Mil.)			Squad. Batt Co. Sgt Maj., Col. Sgt., Staff Sgt., Q.M. Sgt., Inst. (without warrant—Chief Petty Off., Mil. and equiv. ratings (naval)			Q.M. Sergeant (W.O. Class 2) (Military)			Sgt. Maj. (without Warrant) Military Naval Cadet Midshipman (Naval)			Sgt. Maj. (Warrant Officer Class 1) (Military) Warrant Officer (Naval)			Lieut. (Military) Sub-Lieutenant (Naval)			Capt. (Military) Lieutenant (Naval)			Major (Military) Lieutenant-Commander (Naval)			Lieut.-Colonel (Mil.) Commander, Captain under 3 years (Naval) and all ranks above			Colonel (Military) Captain over 3 years (Naval)			Brig.-Gen. (Comdg. Brigade) (Military) Commodore (Naval)			Maj.-Gen. (Comdg. Division) (Military) Rear Admiral (Naval)		
	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total	Pay-able to man	Pay-able to depen-dents	Total
IN-PATIENT	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Single man	1 48		1 48	1 73		1 73	1 93		1 93	2 02		2 02	2 23		2 23	2 28		2 28	2 53		2 53	3 19		3 19	4 00		4 00	5 00		5 00	6 25		6 25	7 50		7 50	14 14		14 14	22 63		22 63
Married man—wife only	0 65	2 18	2 83	0 65	2 47	3 02	0 65	2 67	3 32	0 65	2 67	3 32	0 65	2 87	3 52	0 65	2 92	3 57	0 65	3 33	3 98	0 65	3 93	4 58	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" wife and 1 child	0 65	2 37	3 02	0 65	2 61	3 26	0 65	2 87	3 52	0 65	2 97	3 62	0 65	3 16	3 81	0 65	3 21	3 86	0 65	3 62	4 27	0 65	4 32	4 97	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" " and 2 child	0 65	2 77	3 42	0 65	2 90	3 55	0 65	3 10	3 75	0 65	3 20	3 85	0 65	3 39	4 04	0 65	3 44	4 09	0 65	3 85	4 50	0 65	4 65	5 30	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" " and 3 "	0 65	3 03	3 68	0 65	3 07	3 72	0 65	3 27	3 92	0 65	3 36	4 01	0 65	3 56	4 21	0 65	3 61	4 26	0 65	4 02	4 67	0 65	4 82	5 47	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" " and 4 "	0 65	3 30	3 95	0 65	3 39	4 04	0 65	3 49	4 14	0 65	3 53	4 18	0 65	3 72	4 37	0 65	3 77	4 42	0 65	4 15	4 80	0 65	4 85	5 50	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" " and 5 "	0 65	3 56	4 21	0 65	3 56	4 21	0 65	3 69	4 34	0 65	3 69	4 34	0 65	3 89	4 54	0 65	3 94	4 59	0 65	4 28	5 00	0 65	5 00	5 65	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
" " and 6 "	0 65	3 85	4 50	0 65	3 85	4 50	0 65	3 85	4 50	0 65	3 85	4 50	0 65	4 05	4 70	0 65	4 10	4 75	0 65	4 45	5 13	0 65	5 13	5 78	0 65	4 67	5 32	0 65	5 99	6 64	0 65	7 57	8 22	0 65	8 82	9 47	0 65	15 20	15 85	0 65	23 09	23 74
Man with dependent or dependents —																																								
" 1 dependent	0 65	1 82	2 47	0 65	2 01	2 66	0 65	2 21	2 86	0 65	2 31	2 96	0 65	2 51	3 16	0 65	2 56	3 21	0 65	2 97	3 62	0 65	3 20	3 85	0 65	3 95	4 60													
" 2 dependents	0 65	2 11	2 76	0 65	2 24	2 89	0 65	2 44	3 09	0 65	2 54	3 19	0 65	2 74	3 39	0 65	2 79	3 44	0 65	3 20	3 85	0 65	3 20	3 85	0 65	3 95	4 60													
" 3 dependents	0 65	2 36	3 01	0 65	2 45	3 10	0 65	2 65	3 30	0 65	2 75	3 40	0 65	2 95	3 60	0 65	3 00	3 65	0 65	3 43	4 08	0 65	3 43	4 08	0 65	3 95	4 60													
" 4 dependents	0 65	2 64	3 29	0 65	2 68	3 33	0 65	2 77	3 42	0 65	2 87	3 52	0 65	3 07	3 72	0 65	3 11	3 76	0 65	3 53	4 18	0 65	3 65	4 30	0 65	3 95	4 60													
" 5 dependents	0 65	2 90	3 55	0 65	2 90	3 55	0 65	2 93	3 58	0 65	3 03	3 68	0 65	3 23	3 88	0 65	3 25	3 90	0 65	3 69	4 34	0 65	3 69	4 34	0 65	3 95	4 60													
" 6 dependents	0 65	3 20	3 85	0 65	3 20	3 85	0 65	3 20	3 85	0 65	3 20	3 85	0 65	3 36	4 01	0 65	3 41	4 06	0 65	3 82	4 47	0 65	3 82	4 47	0 65	3 95	4 60													
Single man with 1 partial dependent	0 65	1 32	1 97	0 65	1 32	1 97	0 65	1 32	1 97	0 65	1 32	1 97	0 65	1 32	1 97	0 65	1 32	1 97																							
" 2 or more partial dependents	0 65	1 65	2 30	0 65	1 65	2 30	0 65	1 65	2 30	0 65	1 65	2 30	0 65	1 65	2 30	0 65	1 65	2 30																							
OUT-PATIENT CLASS 1																																							
Single man	2 47		2 47	2 53		2 53	2 73		2 73	2 83		2 83	3 03		3 03	3 08		3 08	3 33		3 33	4 70		4 70	5 70		5 70	6 70		6 70	7 95		7 95	9 20		9 20	15 78		15 78	23 47		23 47
Married man—wife only	0 65	2 77	3 42	0 65	3 16	3 81	0 65	3 36	4 01	0 65	3 46	4 11	0 65	3 66	4 31	0 65	3 71	4 36	0 65	4 13	4 78	0 65	5 06	5 71	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" wife and 1 child	0 65	3 13	3 78	0 65	3 32	3 97	0 65	3 52	4 17	0 65	3 62	4 27	0 65	3 82	4 47	0 65	3 87	4 52	0 65	4 29	4 94	0 65	5 22	5 87	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" " and 2 child	0 65	3 53	4 18	0 65	3 68	4 33	0 65	3 88	4 53	0 65	3 98	4 63	0 65	4 18	4 83	0 65	4 23	4 88	0 65	4 64	5 29	0 65	5 58	6 23	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" " and 3	0 65	3 85	4 50	0 65	3 85	4 50	0 65	4 05	4 70	0 65	4 15	4 80	0 65	4 35	5 00	0 65	4 40	5 05	0 65	4 81	5 46	0 65	5 85	6 50	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" " and 4 "	0 65	4 18	4 83	0 65	4 18	4 83	0 65	4 22	4 87	0 65	4 31	4 96	0 65	4 51	5 16	0 65	4 56	5 21	0 65	4 97	5 62	0 65	5 97	6 62	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" " and 5 "	0 65	4 51	5 16	0 65	4 51	5 16	0 65	4 51	5 16	0 65	4 65	5 30	0 65	4 85	5 50	0 65	4 73	5 38	0 65	5 14	5 79	0 65	5 97	6 62	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
" " and 6 "	0 65	4 84	5 49	0 65	4 84	5 49	0 65	4 84	5 49	0 65	4 84	5 49	0 65	4 84	5 49	0 65	4 84	5 49	0 65	5 27	5 92	0 65	5 30	5 95	0 65	5 95	6 60	0 65	6 37	7 02	0 65	7 09	8 34	0 65	9 27	9 92	0 65	10 52	11 17	0 65	17 75	18 40	0 65	25 84	26 49
Man with dependent or dependents —																																							
" 1 dependent	1 25	1 81	3 06	1 40	1 00	3 30	1 45	2 20	3 65	1 45	2 30	3 75	1 45	2 50	3 95	1 45	2 54	3 99	1 45	2 95	4 40																		
" 2 dependents	1 20	2 12	3 32	1 40	2 22	3 62	1 15	2 43	3 58	1 45	2 53	3 98	1 45	2 73	4 18	1 45	2 77	4 22	1 45	3 19	4 64																		
" 3 "	1 40	2 38	3 78	1 45	2 48	3 93	1 45	2 69	4 14	1 45	2 83	4 28	1 45	2 84	4 29	1 45	2 86	4 31	1 45	3 33	4 78																		
" 4 "	1 60	2 61	4 11	1 50	2 68	4 18	1 50	2 71	4 21	1 50	2 84	4 34	1 50	3 00	4 50	1 50	3 03	4 53	1 50	3 45	4 95																		
" 5 "	1 55	2 89	4 44	1 55	2 93	4 48	1 50	2 95	4 45	1 60	3 05	4 65	1 55	3 12	4 67	1 55	3 17	4 72	1 55	3 58	5 18																		
" 6 "	1 60	3 17	4 77	1 60	3 23	4 83	1 60	3 23	4 83	1 60	3 23	4 83	1 60	3 23	4 83	1 60	3 23	4 83	1 60	3 66	5 26																		
Single man with 1 partial dependent	1 50	1 29	2 79	1 50	1 29	2 79	1 50	1 29	2 79	1 50	1 29	2 79	1 50	1 29	2 79	1 50	1 29	2 79																							
Single man with 2 or more partial dependents	1 50	1 62	3 12	1 50	1 62	3 12	1 50	1 62	3 12	1 50	1 62	3 12	1 50	1 62	3 12	1 50	1 62	3 12																							

INSERT BETWEEN PAGES 108 AND 109

APPENDIX II

Order in Council P.C. 1526, dated the 22nd July, 1922. Authority under which the Minister of Soldiers' Civil Re-establishment may appoint a Board of Appeals in respect of pensions and medical treatment.

The Committee of the Privy Council have had before them a report, dated July 5, 1922, from the Minister of Soldiers' Civil Re-establishment, stating that the second and final report of the special committee appointed by the House of Commons of Canada to consider questions relating to pensions, insurance and re-establishment of returned soldiers and any amendments to the existing laws in relation thereto which may be proposed or considered necessary by the committee, contains the following statements:—

"The Committee has also considered the evidence which has been submitted with a view of indicating that it might be wise in the interests of the returned soldier that a further Medical Board be constituted to which any returned soldier might appeal from an award made by the D.S.C.R. and/or the Board of Pension Commissioners.

"In that regard the Committee does not consider that the extent and nature of the complaints received entirely justify the constitution of a Board which would deal with appeals in general and believes that if such a Board were provided it appears manifest from the evidence submitted and investigation made that the great majority of decisions made by the D.S.C.R. and/or the B.P.C. but appealed from, would be confirmed.

"The Committee, however, considers with a view to clearly establishing the desire of the State to give the returned soldier every advantage that the constitution of a Board is advisable for the purpose of hearing limited appeals, namely,—

"(*a*) where the D.S.C.R. in a first or subsequent instance gives a decision that a soldier is not entitled to treatment owing to a disability being not attributable to war service and the applicant has produced a certificate from a medical practitioner of standing showing that such decision is a fault submitting therewith reasonable evidence substantiating the facts set out in such certificate.

"(*b*) where the physicians of the Board of Pension Commissioners give a decision as to attributability or estimation of disability contrary to that of the District Medical Examiner; or

"(*c*) where a disability pension has been suspended, reduced or cancelled by the Board of Pension Commissioners without or contrary to the opinion of the District Medical Examiner and/or a Travelling Medical Board or a similarly constituted Medical Board.

"In any of these instances it is considered that a Board of three independent medical men with office at Ottawa, entirely independent as to decision of D.S.C.R. or B.P.C. or a physician or physicians (not more than two) on the staff of a recognized hospital of standing in any city or town (approved by the Minister of S.C.R.) but entirely independent of the D.S.C.R. or B.P.C. shall be appointed and who should be author-

ized to hear appeals and the decision given under such appeal should be indicated to the department whose decision is appealed from, which department shall give to such decision the necessary effect. There is to be no cost to the complainant for any fee of such Board. The cost antecedent to the appeal and incurred by the applicant are to be borne by him if the decision of the Appeal Board is adverse.

"Under chapter 2, section 5, of this Report the question of an Appeal Board was discussed and recommended. It was there discussed because certain questions on the subject of pensions and certain in the case of re-establishment are inter-related.

"In recommending such Appeal Board the Committee does not wish it to be understood that it is dissatisfied with the procedure adopted by the Board of Pension Commissioners because such is not the case. The Committee considers that the procedure adopted by such commissioners is equitable. It is, however, very natural in matters which do come before the Board for decision that in some cases differences of opinion may arise between an applicant for pension and the decision of the Board itself. The same difference of opinion might exist in any other phase relating to medical or legal knowledge.

"The Committee in its deliberations has always had in mind the welfare of the ex-soldier which may be compatible with the administration and affairs of the State. For those reasons it recommends the constitution of an Appeal Board as previously indicated under the said section 5, chapter 2, of this report. By the constitution of such Board it will mean that every ex-soldier or applicant for pension, as the case may be, when disagreement exists, will have his particular case discussed by three separate bodies, thus ventilating the entire situation and taking into consideration every phase involved.

"As the Board of Appeal as so recommended has been previously discussed further discussion in this part of this Report is unnecessary."

By Bill No. 208, an Act to amend the Department of Soldiers' Civil Re-establishment Act which was passed on the 27th June, 1922, it is provided that subject to the approval of the Governor General in Council, the Minister of Soldiers' Civil Re-establishment may make such regulations from time to time as he may deem necessary and advisable for the constitution of medical boards, including appeal boards with such powers as may be deemed expedient.

In order to carry out the recommendations set forth in the second and final report of the Committee above referred to, the Minister recommends:—

(1) That a board of three medical men be constituted with headquarters at Ottawa for the purpose of hearing limited appeals, namely:—

(*a*) Where the D.S.C.R. in a first or subsequent instance gives a decision that a soldier is not entitled to treatment owing to a disability being not attributable to war service and the applicant has produced a certificate from a medical practitioner of standing showing that such decision is at fault submitting therewith reasonable evidence substantiating the fact set out in such certificate.

(*b*) where the physicians of the Board of Pension Commissioners give a decision as to attributability or estimation of disability contrary to that of the District Medical Examiner; or

(*c*) where a disability pension has been suspended, reduced or cancelled by the Board of Pension Commissioners without or contrary to the opinion of the District Medical Examiner and/or Travelling Medical Board or a similarly constituted Medical Board.

(2) That the Minister of Soldiers' Civil Re-establishment be authorized to appoint the members of the said Board on such permanent or temporary basis and at such remuneration as he may deem advisable.

(3) That the powers and authorities granted to commissioners under the following clauses of the Inquiries Act (R.S.C. Chapter 104) be granted to the Board:—

"7. The commissioner or commissioners may, for the purposes of the investigation, enter into and remain within any public office or institution, and shall have access to every part thereof, and may examine all papers, documents, vouchers, records and books of every kind belonging thereto and may summon before him or them any person and require him to give evidence on oath, orally or in writing, or on solemn affirmation if he is entitled to affirm in civil matters; and any such commissioner may administer such oath or affirmation.

"8. The commissioner or commissioners may, under his or their hand or hands, issue a subpœna or other request or summons, requiring and commanding any person therein named to appear at the time and place mentioned therein, and then and there to testify to all matters within his knowledge relative to the subject-matter of such investigation, and to bring with him and produce any document, book, or paper, which he has in his possession or under his control relative to any such matter as aforesaid; and any such person may be summoned from any part of Canada by virtue of such subpœna, request or summons.

"2. Reasonable travelling expenses shall be paid to any person so summoned at the time of service of the subpœna, request or summons.

"9. If, by reason of the distance at which any person whose evidence is desired, resides from the place where his attendance is required, or for any other cause, the commissioner or commissioners deem it advisable, he or they may issue a commission or other authority to any officer or person therein empowering them to take such evidence and report the same to him or them.

"2. Such officer or person shall, before entering on any investigation, be sworn before a justice of the peace faithfully to execute the duty entrusted to him by such commission, and shall, with regard to such evidence, have the same powers as the commissioner or commissioners would have had if such evidence had been taken before him or them, and may, in like manner, under his hand issue a subpœna or other request or summons for the purpose of compelling the attendance of any person or the production of any document, book or paper."

(4) That every returned soldier making an appeal to the Board shall have the right to engage counsel or any person he may consider necessary to represent him before the Board, provided that the costs of such counsel or other person shall be borne by the appellant, provided also that the following clauses of the Pension Act (chapter 43, Statutes of 1919) shall apply in all cases where the appellant has been represented by counsel or any other paid advocate:—

"Accounts for fees or charges for services rendered with respect of any application for a pension shall be submitted to the commission for approval, and shall not be collectable unless and until the Commission shall have approved of them."

"Any person who collects or attempts to collect any fees or charges for services rendered with respect of any application for a pension, the amount of which fees or charges has not been approved by the Commis-

sion, shall be guilty of an offence, and shall be liable on summary conviction to imprisonment for a period not exceeding six months, or to a fine not exceeding five hundred dollars, or to both imprisonment and fine."

(5) That in the event of an appeal being successful the Department of Soldiers' Civil Re-establishment shall pay the costs of any medical examination conducted by a medical practitioner at the instance of the appellant prior to the hearing of the appeal in accordance with the scale of fees authorized by the Department of Soldiers' Civil Re-establishment or the Board of Pension Commissioners for such examination but in the event of the appeal not being successful the costs of such examination shall be borne by the appellant. In no case shall the costs antecedent to the appeal include the cost of medical treatment or hospitalization unless such is allowed by the Department of Soldiers' Civil Re-establishment.

(6) That any decision of the Board in respect of pensions, medical treatment, etc., shall be final and shall be made effective by the Board of Pension Commissioners or the Department of Soldiers' Civil Re-establishment unless such decision would contravene the Pension Act or the regulations of the Department of Soldiers' Civil Re-establishment approved by the Governor in Council under the authority of the Department of Soldiers' Civil Re-establishment Act, 1919, as amended.

(7) That all costs incurred by the Board including salaries, clerical assistance, travelling expenses, stationery and other expenses incidental to the proper conduct of the work of the Board be charged against Vote No. 551 (Supplementary Estimates, 1922-23) of the Department of Soldiers' Civil Re-establishment.

The Committee concur in the foregoing recommendations and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX III

Order in Council P.C. 1581, dated the 5th August, 1922. Authority under which the Department of Soldiers' Civil Re-establishment may issue a grant to the Last Post Fund in respect of the burial of former members of the Forces who die in indigent circumstances.

The Committee of the Privy Council have had before them a report, dated the 26th July, 1922, from the Minister of Soldiers' Civil Re-establishment, submitting that the second and final report of the special committee appointed by the House of Commons of Canada to consider questions relating to pensions, insurance and re-establishment of returned soldiers and any amendments to the existing laws in relation thereto which may be proposed or considered necessary by the Committee, contains the following:—

"The Committee has considered that certain adequate provision should be made for the burial expenses of ex-members of the forces who die in destitute circumstances and in whose cases burial is not otherwise

provided for under the Pension Act, including ex-members of the Imperial forces. It is considered advisable also that military honours of a certain character should be accorded.

"In this connection the Committee has considered the petition received from the Last Post Fund and has also considered the evidence submitted before the Committee which met in 1920. It is understood that the fund has carried on excellent work for the past 14 years and is organizing its system throughout the Dominion. Its desire is that no former member of the forces who dies in destitute circumstances should be buried in a pauper's grave.

"The petition of the trustees of the said fund made certain requests. It is not deemed advisable by the Committee that these requests be entirely granted, but it is considered that some action should be taken along the lines suggested by the petition in question.

"The Committee therefore recommends that the Department of Soldiers' Civil Re-establishment be authorized to enter into an agreement with and to make a grant of $10,000 per annum to the trustees of the Last Post Fund for the purpose of assisting towards the provision of burial expenses of former members of the forces of Canada and her Allies who die in destitute circumstances and for whom no other provision is made. It is not intended that such payment shall in any way apply towards the burial of dependents of former members of the forces.

"It is considered that the Department of Soldiers' Civil Re-establishment should before payment of the grant in question be fully satisfied that the proceeds thereof shall proportionately be applied for the burial of ex-soldiers in all the provinces of Canada, and that the organization of the Last Post Fund is sufficient to carry out the intended purpose.

"With regard to military honour during burial the Committee recommends that where facilities exist the Department of Militia and Defence should furnish a gun carriage and a bugler".

The Minister states that the directors of the Last Post Fund are desirous of co-operating with the Department in every possible way. It is proposed that the General Secretary of the fund should visit the various provinces and arrange for the establishment of branch committees in order to carry out the objects of the Fund in those provinces where there is no provision for the burial of indigent ex-members of the forces who have no claim on the Government.

In order to carry out the recommendation of the Parliamentary Committee, the Department of Soldiers' Civil Re-establishment has been granted an appropriation of $10,000 by Parliament, for the year 1922-23, a portion of which will be required for organization purposes.

It has been considered that the basis of division among the provinces should be not only the number of enlistments, but the number of discharges. Approximate figures have therefore been taken of the numbers in question and division has been made accordingly.

The Minister therefore recommends:—

1. That the Department of Soldiers' Civil Re-establishment be authorized to pay to the Last Post Fund the sum of $5,000 to be used by the Directors of the fund in organizing the necessary branches so that the fund may become operative in all the provinces;

2. That the department be authorized to pay to the Fund as soon as branches have been formed, the balance of $5,000.

3. The Last Post Fund shall make reports to the Department of Soldiers' Civil Re-establishment in such form and with such frequency as the Department may from time to time require.

The Committee concur in the foregoing recommendations and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX IV

Order in Council P.C. 1757, dated the 7th September, 1922. Authority under which the High Commissioner for Canada, in co-operation with the Department of Soldiers' Civil Re-establishment and the Department of Immigration, may issue loans for repatriation of former members of the Forces who are stranded in the United Kingdom and may issue relief in certain circumstances.

The Committee of the Privy Council have had before them a report, dated 21st August, 1922, from the Minister of Soldiers' Civil Re-establishment, submitting that the special committee appointed by the House of Commons of Canada to consider questions relating to pensions, insurance and re-establishment of returned soldiers gave special consideration to the subject of the repatriation of former members of the forces and their dependents who are at present in the United Kingdom.

It was pointed out that there are still a considerable number who took their discharges in the United Kingdom and who are at present out of employment and consequently desire assistance towards their transportation and that of their dependents to Canada.

The Committee did not see its way to recommend that provision be made for the repatriation of all who may desire to return to Canada as this was not considered necessary. The committee however recommended that subject to regulations to be drawn up by the Department of Soldiers' Civil Re-establishment and other departments of the Government concerned, provision should be made to repatriate as quickly as possible, the most deserving cases among those ex-members of the forces who took their discharges in England, together with their dependents, providing that they and their dependents desire repatriation and reach a definite decision to that effect before some early date to be fixed by Order in Council. In connection with this recommendation an appropriation of one hundred and fifty thousand dollars ($150,000) has been made by Parliament.

The Minister therefore recommends that the High Commissioner for Canada be authorized to arrange for the repatriation of ex-members of the forces now resident in the United Kingdom who took their discharges in England together with their dependents, subject to the following regulations:—

1. Any assistance rendered under this authority shall be by way of loan repayable on such terms as may be determined in each individual case.

2. Those eligible to receive such loans shall be,—

(*a*) Any officers, non-commissioned officers, or men who served in the Canadian military or naval forces during the late war, who were dis-

charged from such forces in England and who have not since returned to Canada.

(*b*) Widows, wives and children under eighteen years of age of officers, non-commissioned officers and men who served in the Canadian military or naval forces.

(*c*) Widows, wives and children of officers, non-commissioned officers, and men who were domiciled and resident in Canada on the 4th August, 1914, and who served in the Imperial Forces.

3. All those who are in a position to provide a portion of the cost of transportation shall pay such amount to the High Commissioner for Canada who will then make arrangements with the Steamship Companies for the issue of transportation.

4. The funds provided by the Government, together with the amounts provided by applicants for repatriation, shall be used for the purchase of third class accommodation on ship with corresponding rail transportation from the present address in the United Kingdom to port of embarkation and from port of disembarkation to destination in Canada. Those able to pay for accommodation in a better class either on ship or on shore will be expected to make their own arrangements without governmental assistance.

5. Former members of the forces and their dependents will be expected to provide themselves with funds to purchase food and to pay other incidental expenses en route to homes in Canada after disembarkation.

6. In selecting those who are eligible to receive assistance by way of loan preference will be given firstly, to those former members of the forces who were born in Canada, secondly to the dependents of former members of the forces who were born in Canada, thirdly, to those who have a definite promise of work in Canada or are able to submit reasonable evidence that they will not become a public charge in Canada, fourthly, to the dependents of those who have a definite promise of work in Canada or are able to submit reasonable evidence that they will not become a public charge in Canada.

7. No assistance is to be given, unless in exceptional cases, to men or their dependents, who were only in Canada for a short time prior to the 4th August, 1914.

8. No loan shall be issued towards the repatriation of any former members of the forces or their dependents who left Canada on or after the 11th November, 1918.

9. A Committee consisting of a representative of the Department of Soldiers' Civil re-establishment, a representative of the Department of Immigration and Colonization and a representative of the Department of Militia and Defence shall be appointed with headquarters at Ottawa, and all applications for repatriation with such details and evidence as the Committee may require shall be submitted to the Committee from London before any loan is issued or promise of repatriation made. The Committee shall communicate its decision by cable to the High Commissioner for Canada respecting each application submitted and if the decision is in favour of the applicant the necessary loan shall, subject to paragraph 10 hereof, be issued.

10. Before any loan is issued, each member of the family requesting assistance towards repatriation, must be approved by a representative of the Department of Immigration and Colonization in the United Kingdom and in cases where it is found that one or more members of the family are ineligible under the regulations of that department for admission to Canada, no loan shall be issued to or in respect of such family.

11. The High Commissioner shall co-operate with the London office of the Department of Soldiers' Civil Re-establishment and with the Commissioner of Emigration in carrying out the provisions of this Order in Council and shall draw upon the Department of Soldiers' Civil Re-establishment up to the sum of one hundred and fifty thousand dollars ($150,000) for the purposes herein set forth and the sum of ten thousand dollars ($10,000) for the purposes of relief.

12. No loans shall be issued for assistance under the authority of this Order in Council after the 30th April, 1923.

The Committee concur in the foregoing recommendation and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX V

Order in Council P.C. 1929, dated the 21st September, 1922. Authority under which the Department of Soldiers' Civil Re-establishment may issue free transportation to former members of the Forces pensioned for total blindness or for a disability which necessitates an escort.

The Committee of the Privy Council have had before them a report, dated 9th September, 1922, from the Minister of Soldiers' Civil Re-establishment, submitting that the following recommendation appeared in the second and final report of the Special Committee appointed by the House of Commons to consider questions relating to Pensions, Insurance and Re-establishment of returned soldiers:—

> "The Committee recommends that free transportation in Canada be granted to any member of the forces who has been pensioned for total blindness or for a disability which necessitates an escort accompanying on a journey such ex-soldier—in cases where an escort does so accompany such ex-soldier. The provision only to apply to cases of regular travel or where the ex-soldier is travelling on account of his annual vacation, and in no case where the travelling is ordinarily at frequent intervals. In all cases the department to be given discretionary power when or when not to accord this privilege."

The number of blind men to whom the foregoing recommendation would apply is not more than one hundred and fifty (150). It is not known how many other cases would be included where an escort is required.

The Minister recommends that the Department of Soldiers' Civil Re-establishment be authorized to issue free railway transportation for travel in Canada to any former member of the forces who is in receipt of a total disability pension for blindness or for any other disability which necessitates an escort accompanying such former member of the forces, in order to meet the extra expense which it would otherwise be necessary for such former member of the forces to incur in respect of the fare of such escort; provided,—

(*a*) That transportation shall only be issued in cases where an escort travels with the former member of the forces and shall cover the fare of the escort only and not that of the former member of the forces;

(*b*) That this provision shall not apply to cases of regular travel but only when the former member of the forces is travelling on his annual vacation or at other infrequent intervals;

(*c*) That no transportation shall be issued unless the previous approval of the department has been obtained.

(*d*) That the department shall have discretionary power when or when not to accord the foregoing privilege.

The Committee concur in the foregoing recommendation and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX VI

Order in Council P.C. 4432, dated the 29th December, 1921, as amended by P.C. 2247, dated the 27th October, 1922. Authority under which the Department of Soldiers' Civil Re-establishment may assume the cost of compensation in respect of pensioners of 20 per cent and upwards who are engaged in industry.

The Committee of the Privy Council have had before them a report, dated 19th November, 1921, from the acting Minister, Soldiers' Civil Re-establishment, submitting that in order to render less difficult the provision of employment for disabled and handicapped men, the special committee appointed by the House of Commons to consider questions relating to pensions, insurance and re-establishment of returned soldiers at the last session of Parliament recommended (Part 3, Section H, Third and Final Report to Parliament) that, for a period of three years from September 1, 1921, the Government of Canada should assume the liability imposed upon employers of disabled former members of the forces to whom a pension of 20 per cent or over is payable by the Government of Canada in respect of disabilities received in or attributable to the Great War when such former members of the forces meet with industrial accidents, subject to the following regulations:—

(*a*) That on an accident occurring to any such pensioner in Canada and compensation or damages being assessed by any Workmen's Compensation Board of any province in Canada or by any court or other authority against the employer of such pensioner in respect of such accident, the Minister of Finance shall pay out of any unappropriated moneys in the Consolidated Revenue Fund of Canada, the total amount of compensation or damages awarded.

(*b*) That the administration of these regulations shall be in the hands of the Department of Soldiers' Civil Re-establishment by whom all awards under this authority shall be approved before any payment is made.

(*c*) That the Minister of Soldiers' Civil Re-establishment be authorized to issue regulations covering procedure and any other matters not contrary to the foregoing general authority.

It was recognized that in order to meet the requirements of the various provincial Acts it might be necessary to vary slightly the suggested regulations.

The following legislation was therefore passed under Vote 522, Schedule "D" of the Appropriation Act No. 2 (Chapter 54, Statutes of Canada, 1921):—

> "To provide for expenditures arising out of the recommendations of the Third and Final Report of the special Committee on Pensions, Insurance and Re-establishment, and to hereby authorize the putting into effect of the recommendation contained in Part 3, Section 11 thereof, subject to such regulations and limitations as the Governor General in Council may prescribe,—$623,000."

Of the foregoing amount the sum of one hundred thousand dollars ($100,000) represents the anticipated expenditure for the purpose herein indicated for the current fiscal year.

The Minister in pursuance of the foregoing recommends, that the Government of Canada assume the liabilities imposed by provincial Workmen's Compensation Acts of by Common Law in respect of industrial accidents, upon employers of disabled former members of the forces to whom a pension of 20 per cent or over is payable by or through the Government of Canada in respect of disabilities received in or attributable to the Great War subject to the following regulations:—

1. (*a*) In these regulations "pensioner" shall mean a former member of the forces who is in receipt of a pension payable by or through the Board of Pension Commissioners for Canada, of not less than 20 per cent in respect of disabilities received in or attributable to the Great War.

(*b*) "Department" shall mean the Department of Soldiers' Civil Re-establishment.

(*c*) "Compensation" shall mean and include all amounts to which a pensioner is, or, in the case of his death, his dependents are, entitled under or by virtue of any Workmen's Compensation Act in force in any province of Canada.

(*d*) "Full Cost of Compensation" shall include compensation, burial expenses, the cost of furnishing medical aid, and all other amounts payable under or by virtue of a Workmen's Compensation Act in force in any province of Canada by reason of a pensioner's meeting with an accident or by his contracting an industrial disease, compensable under any of said acts, and shall include the capitalized sum or present value of the amount required, as determined by the Workmen's Compensation Board having jurisdiction with respect thereto, to provide for future payments of compensation to the pensioner or his dependents.

(*e*) "Accident" shall include an industrial disease compensable under a Workmen's Compensation Act in force in the province where such disease is contracted.

2. (*a*) The department shall pay to each employer of a pensioner the amount of assessment, if any, paid by such employer to a Workmen's Compensation Board with respect to the wages or other allowances paid or made to such pensioner, provided that said employer shall furnish to the Department a statement giving the following information in respect to such pensioner:—

(i) Name, address, ex-regimental number or pension number.
(ii) Date employment commenced.
(iii) Date employment ceased if pensioner is not employed at the time of making the statement.
(iv) Total amount of wages paid or other allowances made during the period for which reimbursement is claimed.
(v) Rate of assessment levied by the Workmen's Compensation Board upon the wages paid and other allowances made to such pensioner.

(*b*) The department shall also pay to the Workmen's Compensation Board the full cost of compensation with respect to all accidents to pensioners in the Province for the period covered by the Board's certificate hereinafter referred to less all amounts paid or payable to all employers under subsection (*a*) hereof for such period; such payment or payments to be made upon receiving a certificate from the Workmen's Compensation Board of the full cost of compensation, which certificate may be accepted by the Department without other proof.

3. Where the employer of a pensioner entitled to compensation is individually liable for the payment thereof under a Workmen's Compensation Act, or under what is known in the Ontario Act as Schedule 2, the deparement shall refund to the employer the full cost of compensation upon the employer submitting to the Department a certificate of the Workmen's Compensation Board, showing the amount thereof.

4. In the event of a claim for damages being made against the employer by a pensioner who is injured, or by the dependents of a pensioner who dies, by reason of an accident to such pensioner while employed in an industry not within the jurisdiction of a Workmen's Compensation Board, and in the event of liability therefor and the amount of the damages sustained by the pensioner thereby being admitted by the employer with the consent and approval of the department, or if damages be awarded against such employer by any court or authority other than a Workmen's Compensation Board, the department shall submit all the evidence available and a statement of the facts as found by the court or other authority, if the damages shall have been adjudged by any such court or authority, to the Workmen's Compensation Board for the province in which the accident occurred, or if the accident did not occur in a province in which there is a Workmen's Compensation Board, the same shall be submitted to the Workmen's Compensation Board of any adjoining province, or if there be no adjoining province having a Board, or if the accident happens outside of a province, the same shall, in the discretion of the department, be submitted to any Workmen's Compensation Board for the purpose of ascertaining what amount or amounts such Board would allow if the accident were one for which compensation would be payable under the Workmen's Compensation Act of the province for which such Board was appointed, if the industry were within the jurisdiction of the Board, and the department shall pay to the employer the amount as agreed upon as aforesaid or awarded by the court or other authority as the case may be, against the employer if the same be less than the amount as determined by such Board, and if it be greater the department shall pay to the employer the amount as determined by such Board.

5. Where the accident happens outside of a province the employer shall not be entitled to any benefits under these provisions unless the pensioner's employment with such employer commenced in the province and his employment was continuous to the time of the accident, and the accident happens within six months from the last time the pensioner was in the province.

The Committee concur in the foregoing recommendation and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX VII

Order in Council P.C. 1525, dated the 22nd July, 1922. Appointment of Royal Commission on Pensions and Re-establishment.

The Committee of the Privy Council have had before them a Report, dated July 7, 1922, from the Minister of Soldiers' Civil Re-establishment, submitting that the second and final report of the Special Committee appointed by the House of Commons of Canada to consider questions relating to pensions, insurance and re-establishment of returned soldiers and any amendments to the existing laws in relation thereto which may be proposed or considered necessary by the Committee, contains the following:—

> "The Committee has had communicated to it through the daily press and otherwise the accusation made by certain officials of the Great War Veterans' Association as contained in the telegram reported in the press as follows:—
>
> > "Following recent disclosures surrounding Parliamentary inquiry we openly charge Pensions Board with contemptible and cold-blooded conspiracy to deprive ex-service men of rights previously granted by Parliament. There has been deliberate concealment, secret regulations pensions and insurance in direct violation intention of Parliament and deliberate attempt to disguise facts before present Parliamentary Committee. This is culmination unsympathetic policy of increasing severity during recent months. Chairman Committee has consented to reopen question impressed by generally expressed indignation. This plot challenges basic rights ex-service men nullifies in principle established privileges and frustrates further re-establishment effort required.
>
> "The Committee feels that the accusations made in this telegram are extremely serious and considers that these charges should be investigated with care.
>
> "Your Committee therefore recommends as follows:—
>
> "That there be forthwith appointed by the Government a Commission to consist of three persons, such persons in no way to be connected with the Government or with any department thereof, and that such Commission to be appointed be given all necessary authority to inquire into the allegations and accusations made as above indicated to render its report containing such recommendations as to what procedure it may think proper to have adopted—with power to send for all necessary persons and documents, and that the findings of such Commission shall be acted on by the Government."

2. On the submission of this report to Parliament it was agreed that the scope of the inquiry should be enlarged and that the Commission should in addition have power to deal with the following matters, namely:—

> "1. To consider and make suggestions in respect of the procedure by which disabled ex-members of the Canadian Expeditionary force are enabled to make application for pensions and medical treatment, or submit an appeal in respect of decisions thereon.

"2. To recommend means for ensuring that suitable provision is made for those ex-members of the forces and dependents who are under serious handicaps by reason of war services, in conformity with the recommendations now made, and for whom definite legislative provision has not yet been made.

"For the above purposes the commission shall,

"(1). Survey existing re-establishment needs among Canadian ex-service men and dependents.

"(2). Investigate available data in respect of phases of the Parliamentary inquiry as yet incomplete.

"(3). Obtain information as regards suitable provision for those classes of ex-service men described in section 7, chapter 2, of the Committee's report.

"(4). Investigate the question of canteen funds."

It was also suggested that there should be referred to the Commission any matters which the Government thinks should be investigated in regard to returned soldiers.

The Minister therefore, recommends as follows:—

(1) That under Part 1 of the Inquiries Act (R.S.C. Ch. 104) and amendments thereto a Commission be issued to the following gentlemen, each of whom served with distinction overseas during the Great War: J. L. Ralston, Barrister, Halifax, N.S., Chairman; Walter McKeown. Physician, Toronto, Ontario; A. E. Dubuc, Engineer, Montreal, P.Q., directing them forthwith to inquire into and report with all speed upon the accusations contained in the telegram referred to above made by certain officials of the Great War Veterans' Association in accordance with the recommendation of the Parliamentary Committee.

(2) That after the submission of the report referred to the Commission shall extend its inquiry to cover the matters referred to in paragraph 2 hereof.

(3) That Mr. Howard Douglas Dewar be appointed Secretary of the Commission at a salary of $250 per month.

(4) That the Commission shall have the power to engage the services of such accountants, engineers, technical advisors or other experts, clerks, reporters and assistants as it may deem necessary or advisable and also the services of counsel to aid and assist the Commissioners in either or both of the foregoing inquiries and that the Commission may authorize and depute any such accountants, engineers, technical advisors or other experts or any other qualified persons to inquire into any matter within the scope of the Commission as may be directed by the Commission and such persons when authorized by Order in Council, shall, in the execution of the powers so deputed or authorized, have the same powers which the Commissioners have, to take evidence, issue subpœnas and force the attendance of witnesses, compel them to give evidence and otherwise conduct the inquiry and such persons shall report the evidence and their findings if any, thereon, to the Commission.

(5) That there shall be paid to each of the Commissioners the sum of $50 per day for his services on the said Commission, such payment to be made only in respect of the days during which any Commissioner is occupied on the duties of the Commission.

(6) That the remuneration to members of the Commission, salaries, fees, expenses or remuneration of persons employed or engaged by the Commission, travelling, and other incidental expenses, shall be charged against Vote No. 296 of the Department of Soldiers' Civil Re-establishment.

The Committee concur in the foregoing recommendations and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

APPENDIX VIII

Treasury Board Order in Council P.C. 110/1426, approved on the 30th June, 1922. Authority for the discontinuance of cashing Imperial pension cheques and other moneys in sterling at par of exchange.

Finance—

The Board had under consideration a memorandum from the Honourable the Minister of Finance, reporting that under authority of Order in Council of the 21st April, 1922, P.C. 844, regulations relating to the redemption at par of sterling remittances representing pay, allowances, pensions and gratuities of ex-members of the Canadian Expeditionary Forces and of ex-members of the Imperial Forces who were actually domiciled in Canada at the outbreak of war were continued in force, pending the report of the Special Committee of the House of Commons on Pension, Soldiers' Insurance and Civil Re-establishment; that the report of the aforesaid Special Committee concurred in by the House of Commons on the 21st June, 1922, made the following recommendations with respect to this matter:—

1. That all claims received prior to 30th June, 1922, and made under the existing regulations if subsequently proved eligible be paid under the authority of such regulations.

2. That previous regulations as to the redemption at par of all sterling drafts, official cheques, letter and cable transfers, British money orders and British currency that represent pay, allowances, pension and gratuities of former members of the C.E.F. including their dependents, be continued provided that adjustment of the difference between the current and par rates of exchange may only be made when the actual sterling covered by the claim is received for redemption by the Department of Militia and Defence.

3. That the Department of Militia and Defence before considering any claim shall require the former member of the forces presenting a claim to supply such affidavits, declarations or other evidence as may be deemed necessary in support thereof, and that no payment shall be made unless the Department of Militia and Defence is satisfied that such former member of the forces is entitled to the benefit of the privileges for which claim is made.

4. That the privilege heretofore enjoyed by former members of the Imperial Forces with respect to the cashing of pension cheques at par be discontinued as from the 30th June, 1922, and that only cheques which have been deposited for collection with a chartered bank of Canada on or before that date be redeemed at par.

The Minister, therefore, recommends that authority be granted to put into effect the foregoing recommendations, with the addition that notwithstanding the limitation in paragraph four, authority be given for the redemption at par of Imperial pension cheques issued up to and including June 30, 1922, and bearing the usual notation authorizing redemption at par by the Department of Militia and Defence, if deposited for collection with a chartered bank of Canada subsequent to June 30, 1922.

The Minister further recommends that expenses resulting therefrom be charged to Adjustment of War Claims, 1922-23, Department of Militia and Defence.

The Board concur in the above recommendation and submit the same for favourable consideration.

(Sgd.) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

REPORT

OF THE

DEPARTMENT OF HEALTH

FOR THE

FISCAL YEAR ENDED MARCH 31, 1922

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

[No. 19—1923]

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

May it Please Your Excellency:

I have the honour to submit, herewith, for the information of Your Excellency and the Parliament of Canada the Annual Report of the Department of Health, being for the year ended March 31, 1922.

I have the honour to be, sir,

Your Excellency's most obedient servant,

H. S. BELAND,
Minister of Health.

Ottawa, August 28, 1922.

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REPORT

OF THE

DEPARTMENT OF HEALTH

FOR THE FISCAL YEAR ENDED MARCH 31, 1922

Ottawa, August 21, 1922.

Honourable H. S. Béland, M.D.,
Minister of Health,
Ottawa.

Sir,—I have the honour to report on the Department of Health for the year ended March 31, 1922, under the following headings:—

1. Quarantine Service.
2. Immigration Medical Service.
3. Marine Hospitals Service.
4. Venereal Disease Control.
5. Housing.
6. Opium and Narcotic Drugs.
7. Proprietary or Patent Medicines.
8. Division of Medical Research.
9. Child Welfare.
10. Food and Drug Laboratories.
11. Financial Statement.

(1) QUARANTINE SERVICE

During the fiscal year 1921-22 Quarantine Stations were kept in operation at Charlottetown, P.E.I.; Chatham, N.B. (Middle Island); Halifax, N.S. (Lawlor's Island); Louisburg, N.S.; North Sydney, N.S.; Quebec, Que. (Grosse Isle); St. John, N.B. (Partridge Island); and Victoria, B.C. (William Head).

The total number of vessels which reported at the various stations was 1,703 and the number of persons examined 322,238, made up as follows:—

Passengers	1st class	19,090	
	2nd class	48,459	
	Steerage	97,892	
			165,441
Crews			156,371
Cattlemen			249
Stowaways			165
Distressed seamen			12
Total			322,238

DISTRIBUTION OF VESSELS AND PERSONS INSPECTED

Stations	Vessels	Persons (Passengers, Crews, etc.)
Charlottetown, P.E.I.	Nil	Nil
Chatham, N.B.	9	197
Halifax, N.S.	293	66,248
Louisburg, N.S.	18	587
North Sydney, N.S.	189	6,753
Quebec, Que.	702	136,028
St. John, N.B.	239	54,182
Victoria, B.C.	253	58,243
Total	1,703	322,238

——	Chatham	Halifax	Louisburg	N. Sydney	Quebec	St. John	Victoria	Total
1st Class		6,510		44	3,911	1,331	7,294	19,090
2nd Class		10,882			29,054	5,434	3,089	48,459
Steerage		22,411			46,894	11,216	17,371	97,892
Crew	197	26,395	577	6,697	55,815	36,201	30,489	156,371
Cattlemen					249			249
Stowaways		43	5	12	105			165
Distressed Seamen		7	5					12
Total	197	66,248	587	6,753	136,028	54,182	58,243	322,238

The total number of admissions to the quarantine hospitals during the year was 609, distributed as follows:—

Charlottetown, P.E.I.	Nil
Chatham, N.B.	Nil
Halifax, N.S.	39
Louisburg, N.S.	Nil
North Sydney, N.S.	Nil
Quebec, P.Q.	442
St. John, N.B.	82
Victoria, B.C.	47
Total	610

Of these 610 hospital admissions, 247 were patients; the remaining 363 were contacts or persons accompanying the sick. Tables follow showing the distribution by stations of hospital cases, also their classification by disease.

The total number of days in hospital was 7,065, viz., 3,134 for the sick and 3,931 for the contacts, etc.

Of the graver quarantinable diseases, one case of smallpox was landed at the Partridge Island Station, St. John, with four contacts; and at Quebec, three cases of typhus fever among the crew of the ss. *Oristano* were landed at the Grosse Isle Station, together with a number of contacts, none of whom, however, developed the disease. The three positive cases were found to be of a mild character, and were released as cured three weeks after landing. The smallpox case landed at the Partridge Island Station ended fatally; the four contacts, however, did not develop the disease and were discharged from quarantine as soon as the period of incubation had expired.

At the William Head Station, B.C., smallpox occurred in two instances, viz:—

(1) In December, 1921, the ss. *Canadian Highlander* arrived, reporting that a member of the crew had died at sea the day before with malignant smallpox. The body was brought ashore and buried in the quarantine cemetery. The entire crew was bathed and vaccinated and the immediate contacts, and all who could not show

evidence of recent successful vaccination, were detained. These numbered twenty-one, all of British nationality, seventeen of whom were released as soon as evidence of successful vaccination appeared, the remaining four being kept for the full period of fourteen days.

Following fumigation of infected quarters the ship was allowed to proceed.

(2) On March 14, 1922, the ss. *Empress of Russia* arrived at William Head from Japan and reported that one case of smallpox had been taken ashore at Kobe on March 3, in consequence of which five persons were brought ashore at William Head and detained as contacts, viz., one British and four Chinese. These could not show any satisfactory evidence of vaccination, and were kept in quarantine for twenty-four hours, thus complying with the regulations governing such cases.

No other major quarantinable diseases were met with during the year.

At Grosse Isle Quarantine Station fifteen cases of measles and two cases of chickenpox developed among the contacts. Two cases of cross-infection are reported. These cases were admitted to hospital as scarlet fever contacts, but developed measles twenty-four and twenty-seven days respectively after admission.

No secondary cases developed at Lawlor's Island Station, Halifax.

The quarantine officer at St. John reports that there were no secondary cases among the contacts or of cross-infection developed from exposure after admission to the hospital. One case of measles developed among the contacts five days after admission, and was therefore the result of exposure prior to landing.

At William Head a secondary case of measles occurred among the contacts one day after landing at the station, and was therefore not due to exposure subsequent to leaving the vessel.

Two deaths occurred during the year, namely, one at St. John from smallpox, and one at Halifax from whooping cough.

In the autumn of 1921 the old Rockhead Immigration Detention Hospital at Halifax was equipped as an emergency quarantine detention building, with a hospital unit.

There were two deaths from among the personnel of the Lawlor's Island Station during the fiscal year, namely, Dr. N. E. MacKay, the superintendent, and William D. Logan, station engineer.

During the year, 149 persons were vaccinated in accordance with the quarantine regulations, as follows:—

Quebec	10
St. John	113
Victoria	26
Total	149

DISTRIBUTION OF HOSPITAL CASES

Station	Sick	Days in hospital	Contacts and persons accompanying sick	Days in hospital	Total persons in hospital	Total days in hospital
Halifax	19	387	20	381	39	768
Quebec	179	1,972	263	2,585	442	4,557
St. John	41	682	41	640	82	1,322
Victoria	8	93	39	325	47	418
Total	247	3,134	363	3,931	610	7,065

CLASSIFICATION OF HOSPITAL CASES BY DISEASE

Diseases	Patients	Days in hospital	Contacts and persons accompanying sick	Days in hospital	Total days in hospital
Adenitis	1	6			6
Bronchitis	1	16	1	16	32
Broncho-pneumonia	3	54	4	40	94
Cerebral spinal meningitis	1	32	1	32	64
Chickenpox	11	164	21	240	404
Dermatitis	3	30	5	50	80
Diphtheria	8	124	8	46	70
Dysentery	1	18	2	36	54
Enteric fever	3	133			133
Erysipelas	6	45	5	34	79
German measles	2	12	5	24	36
Influenza	7	81	3	27	108
Measles	108	1,507	176	2,022	3,529
Mumps	13	125	28	270	395
Observation	26	144	37	152	296
Pediculosis	28	95	8	28	123
Psoriasis	1	7			7
Scarlet fever	11	405	19	597	1,002
Smallpox	1	4	30	240	244
Tonsilitis	3	22	3	23	45
Typhus fever	3	63			63
Whooping cough	6	47	7	54	101
Totals	247	3,134	363	3,931	7,065

CLASSIFICATION OF DISEASES BY STATIONS

MEASLES

Stations	Sick	Hospital Days	Contacts, etc.	Hospital Days	Total days in hospital
Halifax	4	80	2	41	121
Quebec	77	1,003	136	1,488	2,491
St. John	21	356	25	340	696
Victoria	6	68	13	153	221
Total	108	1,507	176	2,022	3,529

MUMPS

Halifax	1	9	3	27	36
Quebec	11	112	25	243	355
Victoria	1	4			4
Total	13	125	28	270	395

OBSERVATION

Halifax	1	2			2
Quebec	25	142	37	152	294
Total	26	144	37	152	296

DIPHTHERIA

Quebec	3	44	7	33	77
St. John	5	80	1	13	93
Total	8	124	8	46	170

CLASSIFICATION OF DISEASES BY STATIONS—*Continued*

ERYSIPELAS

Stations	Sick	Hospital days	Contacts, etc.	Hospital days	Total days in hospital
Quebec	5	40	5	34	74
St. John	1	5			5
Total	6	45	5	34	79

GERMAN MEASLES

Quebec	2	12	5	24	36

ENTERIC FEVER

Quebec	3	133			133

SCARLET FEVER

Halifax	3	141	6	197	338
Quebec	4	124	7	237	361
St. John	4	140	6	163	303
Total	11	405	19	597	1,002

SMALLPOX

St. John	1	4	4	68	72
Victoria			26	172	172
Total	1	4	30	240	244

TONSILITIS

Quebec	2	16	3	23	39
St. John	1	6			6
Total	3	22	3	23	45

TYPHUS FEVER

Quebec	3	63			63

WHOOPING COUGH

Halifax	6	47	7	54	101

INFLUENZA

Halifax	2	46			46
Quebec	3	27	3	27	54
St. John	2	8			8
Total	7	81	3	27	108

CLASSIFICATION OF DISEASES BY STATIONS—*Concluded*

CHICKENPOX

Stations	Sick	Hospital Days	Contracts, etc.	Hospital Days	Total days in hospital
Halifax	1	30	1	30	60
Quebec	9	113	20	210	323
Victoria	1	21			21
Total	11	161	21	240	404

CEREBRO SPINAL MENINGITIS

Halifax	1	32	1	32	64

ADENITIS

St. John	1	6			6

BRONCHITIS

St. John	1	16	1	16	32

ISORIASIS

St. John	1	7			7

BRONCHO PNEUMONIA

St. John	3	54	4	40	94

DERMATITIS

Quebec	3	30	5	50	80

DYSENTERY

Quebec	1	18	2	36	54

PEDICULOSIS

Quebec	28	95	8	28	123

LEPER STATIONS

Lazaretto, Tracadie, N.B.—At the close of the fiscal year there were ten patients at this Lazaretto, five males and five females; the lowest number since the station was opened. No new cases were admitted during the year. General health conditions are reported by Dr. Langis, the Medical Superintendent, to have been fairly good. Three deaths occurred during the year, namely, a male aged 67 in the last stage of mixed leprosy; a female aged 54, a paralytic for years, from congestion of the lungs; the third a male, aged 64, who in the course of a common cold, developed pneumonia.

Dr. Langis reports that during the year, through the courtesy of the Surgeon Director of the Leprosy Investigation Station at Honolulu, he received a supply of the mixed ethyl esters of the fatty acids of chaulmoogra oil, plus 2 per cent iodine, for intramuscular injection, accompanied by a letter from which the following is an extract:—

> "There is no charge for the material, as the United States is not manufacturing it for commercial gain. We are interested in alleviating leprosy in the world at large more particularly in the United States and its possessions. However, I would look upon your institution in the same light as those of the United States, inasmuch as you are only a short distance from our border, and anything which will contribute to health conditions in Canada cannot help but contribute to those in the United States also."

Dr. Langis states that this preparation is being used with marked success, and is the best medicine so far used at the station in the treatment of leprosy. The generosity and kindness expressed in the above-quoted letter is gratefully acknowledged both by Dr. Langis and by the Department.

Dr. Langis concludes his report by paying a tribute to the Religieuses Hospitalieres de St. Joseph. "Thanks," he says, "to their energetic, self-denying and tender-hearted co-operation, every member of our small colony of lepers is a contented patient."

Lazaretto, D'Arcy Island, B.C.—This leper colony is situated on D'Arcy Island, about 30 miles from the William Head Quarantine Station, and is under the superintendency of the medical officer of that station. There are at present five lepers at this Lazaretto, all Chinese. One patient was released during the year as showing no clinical or bacteriological evidences of the disease. The remaining cases show signs of improvement under the chaulmoogra oil treatment. A new case, that of a Chinaman, was admitted on March 31, the last day of the fiscal year, and is included in the number noted above.

In addition to the five Chinese lepers at D'Arcy Island, one other case of leprosy is being treated at the William Head Quarantine Station, namely, a Russian Hebrew. This case was discovered at Winnipeg in the autumn of 1921, and prompt arrangements were made to have him removed to isolated quarters at the quarantine station. The acting medical superintendent reports that this man's condition has already greatly improved under the treatment being administered.

(2) IMMIGRATION MEDICAL SERVICE

During the fiscal year ended March 31, 1922, immigrant passengers, etc., to the number of 63,990 were examined by officers of the Immigration Medical Service at the Atlantic and Pacific ports for the purpose of detecting physical or mental diseases or defects, in accordance with the provisions of the Immigration Act. This number compared with 109,529 for the previous year, shows a decrease of 45,539.

The total number of immigrants "certified" as coming within the "prohibited classes" enumerated in the respective subsections of section 3 of the Immigration Act is as follows:—

Subsection	(a)	Persons mentally defective	36
"	(b)	Persons having loathsome or contagious disease	46
"	(c)	Persons physically defective	608
"	(j)	Persons who from a medical point of view are likely to become public charges	6
"	(k)	Persons of constitutional psychopathic inferiority	4
"	(m)	Persons mentally or physically defective, not included within any of the foregoing classes	36
		Total "Certified"	736

A detailed statement follows showing, by ports, the specific diseases or defects for which "certified."

Immigrant passengers who on arrival required medical or surgical treatment were detained in hospital to the number of 358. A detailed statement follows showing, by ports, the causes for which detained.

Of the immigrant passengers detained on arrival for further medical examination than could be afforded during line inspection, the condition of 170 was found to be negative and they were immediately released. A statement follows showing the number by ports.

In addition to those "certified," immigrants to the number of 722 were found to have minor defects, which while not sufficient to bring them within the "prohibited classes" enumerated in section 3 of the Immigration Act, were noted on individual record cards and filed for future reference. A statement follows showing the number by ports.

NUMBER OF IMMIGRANTS, ETC., MEDICALLY INSPECTED AT OCEAN PORTS

Quebec	41,256
St. John	8,964
Halifax	7,440
Montreal	797
North Sydney	394
Sydney	120
Vancouver	1,628
Victoria	1,538
United States ports (New York, Boston and Portland)	1,853
Total	63,990

IMMIGRANTS "CERTIFIED" UNDER SECTION 3 OF THE IMMIGRATION ACT

SUBSECTION (A)—MENTALLY DEFECTIVE

Disability	Quebec	St. John	Halifax	Montreal	North Sydney	Total
Idiots	1			1		2
Imbeciles	1					1
Feeble-minded	24	1		1	1	27
Epileptics		1				1
Insane	4		1			5
Total	30	2	1	2	1	36

SUBSECTION (K)—PERSONS OF CONSTITUTIONAL PSYCHOPATHIC INFERIORITY

Quebec	3
Halifax	1
Total	4

RACE OF IMMIGRANTS "CERTIFIED" AS MENTALLY DEFECTIVE

Race	Idiocy	Imbeciles	Feeble Minded	Epilepsy	Insane	Constitutional Psychopathic Inferiority	Total
British	2		26		3	4	35
French			1		1		1
Hebrew			1		1		2
Italian				1			1
Roumanian		1					1
Total	2	1	27	1	5	4	40

SUBSECTION (B)—PERSONS SUFFERING FROM LOATHSOME OR CONTAGIOUS DISEASE

Disease	Quebec	St. John	Halifax	Montreal	Victoria	Vancouver	Total
Favus of scalp	1						1
Gonorrhoea	4			1	3		8
Ringworm of nails	2	1					3
Ringworm of scalp	4	6			1		11
Syphilis	2				1	1	4
Trachoma	4	5	2	1			12
Tubercular Adenitis						1	1
Tubercular glands of neck		1					1
Tuberculosis (pulmonary)	3			2			5
Total	20	13	2	4	5	2	46

RACE OF IMMIGRANTS "CERTIFIED" AS HAVING LOATHSOME OR CONTAGIOUS DISEASE

Race	Favus	Gonorrhoea	Ringworm	Syphilis	Trachoma	Tuberculosis	Total
Armenian					1		1
Belgian					1		1
British	1	3	6	1		2	13
Chinese		2	1	2	1	1	7
Hebrew		1	7	1	6	3	18
Japanese		1					1
Polish					3	1	4
Syrian		1					1
Total	1	8	14	4	12	7	46

SUBSECTION (C)—PERSONS PHYSICALLY DEFECTIVE—"LIABLE TO BECOME A PUBLIC CHARGE"

Defects	Quebec	St. John	Halifax	Victoria	otal
Ankylosis		1	4		5
Asthma	1				1
Acromegaly			1		1
Amputated members	24	4	2		30
Anaemia	1		1		2
Blindness, partial	2	7			9
Blindness, total	1		2		3
Bright's disease				1	1
Bronchitis, chronic	2	1	2		5
Cardiac hypertrophy			3		3
Chorea	1				1
Cleft palate	4				4
Curvature of spine	24	1	3		28
Club foot	2	1			3
Deafness and dumbness	4	2	3		9
Deafness (total)	18	7			25
Deafness (partial)	54				54
Disordered action of heart	5				5
Dislocated hip	7	1			8
Dwarfed and deformed	3				3
Emphyma			1		1
Emphysema of lungs (chronic)	1				1
Flat foot	1		1		2
General debility	2				2
General debility and anaemia	2				2
Genu valgum	1				1
Goitre (simple)	2				2
Goitre (Exophthalmic)	1				1
Hernia	53	3	10		66
Hysteria	1				1
Hydrocele	3				3
Impaired members		17	13		30
Impediment of speech	10	1			11
Incontinence of urine (chronic)	1				1
Infantile paralysis			1		1
Lack of physical development	2		2		4
Lameness		12			12
Locomotor ataxia				1	1
Loss of power of member (partial)	113				113
Nervous debility			1		1
Paralysis (partial)	11	3			14
Paralysis (agitans)	1				1
Paraplegia	1		1		2
Phylyctenular conjunctivitis			1		1
Premature senility	13	4	2		19
Poor physique	1				1
Psoriasis	1				1
Rickets	5		2		7
Rheumatism (chronic)	11				11
Sciatica	1				1
Shell shock			2		2
Senility		2			2
Synovitis (chronic)	2				2
Torticollis (spasmodic)	1				1
Valvular disease of heart	11	5	3	1	20
Varicocele and Varicose Veins	1				1
Varicose ulcer	1				1
Varicose veins	5		1		6
Vision defective	56		3		59
Total	468	72	65	3	608

SUBSECTION (J)—PERSONS WHO FROM A MEDICAL POINT OF VIEW ARE LIKELY TO BECOME PUBLIC CHARGES

Cause	Quebec	St. John	Halifax	Total
Illegitimate pregnancy	3	1	2	6

SUBSECTION (M)—MENTALLY AND PHYSICALLY DEFECTIVE—AFFECTING ABILITY TO EARN A LIVING

Defects	Quebec	St. John	Halifax	Total
Mentally defective	5			5
Mentally and physically defective	5			5
Physically defective	2	8	16	26
Total	12	8	16	36

IMMIGRANTS DETAINED FOR MEDICAL OR SURGICAL TREATMENT AND SUBSEQUENTLY RELEASED AS CURED OR FIT TO TRAVEL

Cause	Quebec	St. John	Halifax	Montreal	Vancouver	Victoria	Total
Abscess	4		8				12
Acute indigestion			1				1
Anaemia					1		1
Appendicitis	2			1			3
Articular rheumatism					1		1
Broncho-pneumonia	1						1
Bronchitis	1						1
Burns	1		1				2
Cardiac failure	X-1						1
Cellulitis	1		1		1		3
Conjunctivitis	12	1	3	1	16	19	52
Childbirth	15		2				17
Convulsions	1						1
Cerebral meningitis						X-1	1
Corneal ulcer	1						1
Cyst (Meibomiaa)					2		2
Debility					1		1
Dermatitis	6	1					7
Diphtheria	2						2
Dislocated elbow	1						1
Eczema	4		2		1		7
Endometritis					1		1
Enteritis	1						1
Fractured elbow joint			1				1
Fractured patella	1						1
Gonorrhoea						1	1
Impetigo	19	3	4		2		28
Influenza			5				5
Ingrown toe nail	1						1
Insomnia				1			1
Intestinal perforation	X-1						1
Infected arm	1						1
Infected lip	1						1
Lacerated breast			1				1
Mumps	1						1
Myalgia			1				1
Periosteitis	2						2
Peritonitis			X-1				1
Pharyngitis	1						1
Pleurisy	1						1
Phlegmon	2						2
Pneumonia	3			1			4
Purpura haemorrhagica						X-1	1
Pyorrhoea					1		1
Otitis Media	3		2				5
Ringworm	1	6	1	1		1	10
Scabies	9					114	123
Sprained ankle	1						1
Stomatitis					1		1
Sycosis barbae	1						1
Tonsillitis	6		2				8
Trachoma		3		5	1		9
Traumatic arthritis	1						1
Varicose ulcers				1			1
Whooping cough			2				2
Wounds (various)	2						2
Valvular disease of heart	X-1					1	2
Total	113	14	38	11	29	138	343

X—Died.

IMMIGRANTS DETAINED FOR FURTHER MEDICAL EXAMINATION AND SUBSEQUENTLY RELEASED AS NEGATIVE

Quebec	100
St. John	26
Halifax	26
Montreal	16
Vancouver	2
Total	170

IMMIGRANTS "RECORDED" FOR MINOR MENTAL OR PHYSICAL DEFECTS

Quebec	485
St. John	96
Halifax	141
Total	722

(3) MARINE HOSPITALS SERVICE

The administration of this branch of the public service was transferred from the Department of Marine to the Department of Health on November 1, 1919.

Under the provisions of Part V of the Canada Shipping Act (Sick and Distressed Mariners' Act), sick mariners' dues of 2 cents per ton, net or registered tonnage, are levied on every vessel entering any port in the provinces of Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and British Columbia, from a foreign port or a port not within the same province. The officers and seamen of fishing vessels not registered in Canada do not pay dues, nor participate in the benefits accruing therefrom, but fishing vessels registered in Canada may pay these dues and participate in the benefits.

The Act does not apply to the province of Ontario; therefore, no sick mariners' dues are collected from that province.

In consideration of the payment of these sick mariners' dues, sick, injured or distressed mariners employed on vessels on which said duty has been paid, are entitled to free and gratuitous treatment. The expenditure for such treatment is defrayed out of the appropriation voted by Parliament for that purpose.

During the fiscal year 1921-22, the Department of Health operated two marine hospitals, one at Sydney and the other at Lunenburg, in the province of Nova Scotia. The marine hospital at Douglastown, N.B., was closed during the year and arrangements made with the Hotel-Dieu, Chatham, for the treatment of all sick mariners arriving at that port and vicinity.

During the year 1921-22, the following hospitals have looked after the treatment of sick and distressed mariners at contract rates with the department:—

Nova Scotia—

Halifax—

Victoria General Hospital.
City Health Board Hospital (Contagious diseases).

Pictou—Pictou Cottage Hospital.
North Sydney—Hamilton Memorial Hospital.
New Glasgow—Aberdeen Hospital.
Antigonish—St. Martha's Hospital
Windsor—Payzant Memorial Hospital.
Amherst—Highland View Hospital.
Springhill—Springhill Cottage Hospital.
Yarmouth—Yarmouth Hospital.
Kentville—Nova Scotia Sanatorium (Tubercular patients).
Glace Bay—St. Joseph's Hospital.

New Brunswick—

Bathurst—James Dunn Hospital.
Campbellton—Hotel-Dieu Hospital.
Chatham—Hotel-Dieu.
Moncton—Moncton Hospital.
St. Stephens—Chipman Memorial.
St. John—
General Public Hospital.
City Health Board Hospital (Contagious diseases).
River Glade—Jordan Memorial Sanatorium (Tubercular patients).

Prince Edward Island—

Charlottetown—
Charlottetown Hospital.
Prince Edward Island Hospital.
Summerside—Prince County Hospital.

Quebec—

Chicoutimi—Hotel-Dieu St. Valier.
Levis—Hotel-Dieu.
Montreal—
Montreal General Hospital.
Notre Dame Hospital.
Hotel-Dieu.
Royal Victoria Hospital.
St. Paul's (Contagious diseases).
Alexandra Hospital (Contagious diseases).
Quebec—
Jeffery Hale's Hospital.
Hotel-Dieu.
Sorel—Hôpital Général.
Three Rivers—St. Joseph's Hospital.
St. Jean—Hôpital St. Jean.

British Columbia—

Anyox—General Hospital.
Chemainus—General Hospital.
Ladysmith—General Hospital.
Nanaimo—Nanaimo Hospital.
New Westminster—
Royal Columbian Hospital.
St. Mary's Hospital.
Ocean Falls—Ocean Falls Hospital
Prince Rupert—General Hospital.
Ocean Falls—Ocean Falls Hospital.
Prince Rupert—General Hospital.
Union Bay—Cumberland Hospital.
Vancouver—
Vancouver General Hospital.
St. Paul's Hospital.
Victoria—
St. Joseph's Hospital.
City Isolation Hospital (Contagious diseases).

Where there is no marine or designated hospital, the collector of customs makes best provision for the treatment of sick mariners at private residences or public boarding houses.

During the year 1921-22, the number of sick and injured mariners treated in the service was 2,035, with the following distribution:—

TABLE SHOWING NUMBER OF SEAMEN TREATED AT EACH PORT, AND NUMBER OF DAYS HOSPITAL OR PRIVATE RESIDENCE TREATMENT

Port	Number of Seamen	Days' Treatment
Nova Scotia—		
Abbotts Harbour	1	14
Advocate Harbour	Nil	
Annapolis Royal	Nil	
Apple River	2	
Arichat	6	35
Barrington	2	
Barton	Nil	
Bear River	3	
Bridgetown	3	
Bridgewater	1	18
Canning	1	
Canso	14	127
Cheticamp	27	
Clark's Harbour	4	21
Digby	42	7
Freeport	5	
Gabarus	1	
Glace Bay	Nil	
Halifax—		
Victoria General	151	3,343
Infirmary	1	32
Mader Hospital	1	21
City Hospital	5	
Hantsport	8	
Ingramport	1	
Kentville	1	271
Kingsport	5	
La Have	11	
Little Bass River	1	
Liverpool	39	361
Lockeport	24	159
Louisburg	3	4
Lunenburg	6	135
Mahone Bay	4	
Margaree	5	
Margaretsville	2	14
Meteghan	5	137
North Sydney	80	208
Parrsboro	7	
Pictou	31	424
Point Tupper, Port Mulgrave, Hawkesbury and Hastings	14	2
Port Greville	3	
Port Hood	3	
Port Latour	Nil	
Port Morien	3	
Port Mouton	1	8
Port Wade	1	58
Pubnico	11	
Pugwash	1	
Sandy Cove	3	14
Shelburne	13	4
Sherbrooke	1	
Springhill	2	56
St. Peters	4	
Sydney	54	2,619
Sydney Mines	1	
Weymouth	5	
Windsor	11	133
Yarmouth	98	902
Total	232	9,127

TABLE SHOWING NUMBER OF SEAMEN TREATED AT EACH PORT, ETC.—*Continued*

Port	Number of Seamen	Days' Treatment
New Brunswick—		
Alma and Albert	2	
Bathurst	12	67
Beaver Harbour	2	48
Campbellton	14	63
Caraquet	2	
Chatham	8	218
Dalhousie	Nil	
Grand Harbour	2	
Hillsboro	1	
Moncton	1	
North Head	3	
Port Elgin	1	54
River Glade	1	332
Richibucto	Nil	
St. Andrews	1	
St. Georges	1	
Shediac	Nil	
Shippegan	3	
St. John—		
General Public Hospital	147	2,008
Infirmary, Mission Society	1	32
County Hospital	3	209
City	3	
St. Stephens	2	
Total	210	3,031
Prince Edward Island—		
Alberton	2	
Charlottetown—		
P.E.I. Hospital	8	459
Charlottetown Hospital	6	243
Crapaud	1	
Georgetown	2	
Montague	3	24
Murray Harbour	5	
Summerside	6	53
Souris	13	6
Tignish	2	
Total	48	785
Quebec—		
Batiscan	1	
Chicoutimi	4	340
Gaspé	3	
Harrington	1	28
Lachine	1	32
Lévis	12	135
Magdalen Islands	1	
Matane	1	
Montreal—		
Notre Dame	130	1,674
General Hospital	431	3,555
Royal Victoria	16	427
St. Paul's	1	11
Alexandra	1	4
Paspebiac	1	
Port Alfred	6	
Quebec—		
Hotel Dieu	16	229
Jeffery Hale's	24	442
Civic Hospital	1	5
Seven Islands	2	10
Sorel	3	14
St. Johns	9	
Tadousac	11	202
Three Rivers	8	5
Total	689	7,213

TABLE SHOWING NUMBER OF SEAMEN TREATED AT EACH PORT, ETC.—*Concluded*

Port	Number of Seamen	Days' Treatment
British Columbia—		
Bella Bella	1	
Chemainus	7	17
Ladysmith	2	17
Nanaimo	7	171
New Westminster	2	26
Ocean Falls	47	2
Port Alice and Quatsino	3	45
Port Alberni	10	20
Prince Rupert	19	184
Tofino	1	
Union Bay	2	
Vancouver—		
St. Paul's Hospital	174	3,017
General Hospital	19	480
Victoria—		
St. Joseph's Hospital	58	1,165
Isolation	4	41
Total	356	6,185
Grand total: Number of seamen	2,035	
Days' treatment		26,341

The following is a tabular statement showing diseases and injuries for which sick mariners received treatment during the year:—

Disease	No. of Seamen treated	
General Diseases		413
Measles	5	
Diphtheria	2	
Scarletina	1	
Mumps	6	
Typhoid fever	32	
Para-typhoid	1	
Erysipelas	3	
Cholera morbus	1	
Tuberculosis	17	
Malaria	3	
Syphilis	83	
Gonorrhœa	52	
Scabies	9	
Toemia	2	
Alcoholism	2	
Morphinism	1	
Diabetes	1	
Rheumatism	63	
Beri beri	1	
Anaemia	3	
New growths—non-malignant	4	
General debility	6	
Cyst	4	
Neurasthenia	11	
Influenza	98	
Ptomaine	2	
Local Diseases		1,080
Diseases of the Nervous System		40
1. Of the nerves		8
Neuritis	8	
2. Of the Spinal Cord and Membranes		1
Degeneration of lateral column	1	
3. Of Brain and Membranes		1
Inflammation	1	

The following is a tabular statement showing diseases and injuries for which sick mariners received treatment during the year—*Continued*

Disease	No. of Seamen treated	
4. Functional and other nervous diseases		30
Paralysis	2	
Hemiplegia	2	
Epilepsy	1	
Congestion of brain	2	
Vertigo	1	
Neuralgia	14	
Hiccoughs	1	
Insomnia	2	
Hysteria	1	
Headaches	2	
Psychosis	1	
Mania	1	
Diseases of the Eye		35
Conjunctivitis	24	
Chalazion	2	
Choroiditis	2	
Dacryocystitis	1	
Ulcer cornea	3	
Iritis	2	
Trachoma	1	
Diseases of the Ear		23
Cerumen	6	
Otitis Media	9	
Deafness	5	
Mastoiditis	3	
Diseases of the Nose		9
Rhinitis	7	
Abscess	1	
Epistaxis	1	
Diseases of the Circulatory System		17
Valvular diseases	11	
Tachycardia	1	
Athroma	1	
Arterio-sclerosis	1	
Thrombosis	1	
Haematoma	1	
Oedema	1	
Diseases of the Respiratory System		226
Bronchitis	119	
Tonsilitis	39	
Pneumonia	25	
Broncho-pneumonia	1	
Laryngitis	5	
Congestion of lung	1	
Haemorrhage of lung	5	
Pleurisy	20	
Asthma	10	
Abscess of lung	1	
Diseases of the Digestive System		298
Dental caries	58	
Toothache	14	
Alveolar abscess	4	
Quinsy	1	
Pharyngitis	3	
Ulcer of stomach	3	
Gastritis	34	
Indigestion	27	
Pyorrhœa	6	
Cancer of stomach	1	
Haemorrhoids	8	
Fistula	2	
Appendicitis	42	
Colitis	11	
Jaundice	7	
Diarrhœa	12	

The following is a tabular statement showing diseases and injuries for which sick mariners received treatment during the year—*Continued*

Disease	No. of Seamen treated	
Hepatitis	4	
Hernia	31	
Constipation	4	
Dysentery	7	
Enteritis	4	
Dyspepsia	9	
Intestinal obstruction	1	
Gall-stones	4	
Ulcer of duodenum	1	
Diseases of the Lymphatic System		23
Adenitis	23	
Diseases of the Urinary System		39
Nephritis	10	
Bright's	3	
Renal colic	3	
Peri-nephritis abscess	1	
Cystitis	13	
Prostatis	8	
Retention	1	
Diseases of the Generative System		41
Urethritis	2	
Balanitis	1	
Stricture	6	
Phimosis	2	
Chancroids	4	
Varicocele	7	
Hydrocele	1	
Orchitis	15	
Epididymitis	3	
Diseases of the Organs of Locomotion		76
Osteitis	6	
Sciatica	6	
Myalgia	13	
Lumbago	36	
Bursitis	4	
Sinusitis	1	
Periosteitis	1	
Caries	2	
Synovitis	7	
Diseases of the Connective Tissues		177
Cellulitis	121	
Abscess	56	
Diseases of the Skin		74
Boils	24	
Carbuncles	5	
Erythema	3	
Eczema	21	
Acne	1	
Herpes	4	
Urticaria	3	
Dermatitis	1	
Ulcers	11	
Whitlow	1	
Injuries—		
General injuries		54
Burns	28	
Multiple injuries	26	
Local injuries		488
Contusion of muscles	9	
Wounds of muscles	7	
Injuries face	7	
Injuries eyes	11	
Injuries head	20	
Injuries upper extremities	133	
Fracture bones of nose	1	

The following is a tabular statement showing diseases and injuries for which sick mariners received treatment during the year—*Concluded*

Disease	No. of Seamen treated
Fracture skull	2
Fracture ribs	13
Injuries chest	3
Foreign body in eyes	8
Fracture jaw	6
Fracture arm	14
Dislocated hand	1
Sprained wrist	4
Fracture shoulder	2
Fracture forearm	12
Dislocated elbow	3
Fractured fingers	4
Fractured clavicle	2
Injuries side	15
Injuries back	25
Injuries abdomen	3
Injuries lower extremities	56
Fractured femur	13
Fractured tibia	5
Fractured fibula	3
Fracture tibia and fibula	2
Fractured patella	1
Fractured bones of foot	11
Sprained ankle	13
Flat feet	3
Gun-shot wound	2
Fatigue	10
Frostbite	2
Malingerer	4
Physical examinations	12
X-ray examinations	11
Observation	4
No diagnosis	31
Total number of seamen treated	2,035

During the course of the year, the Service lost three of its efficient members, who were removed by death, namely, Dr. R. L. Botsford, Port Physician at Moncton; Dr. M. Gervais, at Three Rivers; and Dr. R. Withers, Annapolis Royal.

The information regarding expenditure in connection with this branch of the public service will be found in the financial statement.

(4) VENEREAL DISEASE CONTROL

The sum of $200,000 was granted by the Dominion Government for the work of venereal disease control for the fiscal year ended March 31, 1922. Of this sum, $10,000 was granted to the Canadian National Council for Combating Venereal Disease; $10,000 was retained for current expenses and the balance divided among the provinces as follows:—

New Brunswick	$ 7,517 83
Nova Scotia	10,573 86
Alberta	11,979 62
Manitoba	12,611 20
British Columbia	14,628 19
Saskatchewan	15,361 63
Quebec	47,388 80
Ontario	57,473 68

This money was given to the provinces in accordance with the agreement which was entered into between the Dominion Government and the provinces in the year 1919, for the control of venereal diseases.

TEXT OF AGREEMENT

That each of the provinces would expend an amount at least equal to that received and provide:

(*a*) Clinics for the free treatment of venereal disease.

(*b*) Hospital beds for patients requiring indoor treatment.

(*c*) Free treatment in institutions, such as reformatories, jails, etc.

(*d*) Laboratories for all necessary examinations.

(*e*) Work of propaganda.

The whole of the work in each province to be in the hands of an expert in the work.

There are, at present, in operation in the Dominion fifty-two clinics, situated as follows:—

Nova Scotia	5 clinics
New Brunswick	8 "
Quebec	8 "
Ontario	13 "
Manitoba	4 "
Saskatchewan	8 "
Alberta	4 "
British Columbia	2 "

Free hospital accommodation and free treatment in institutions have been provided. Laboratories working in conjunction with these clinics are in operation in all of the provinces. The campaign of education, which is so necessary a part of the work, is being carried on energetically. Each of the provinces, in conjunction with the Dominion Department of Health, is issuing literature destined for the education of the public. This department has distributed the following educational literature throughout the Dominion:—

PUBLISHED IN ENGLISH

Publication	No. 1, "General Circular of Information concerning Venereal Diseases"	11,325
"	No. 2, "Venereal Diseases, Wassermann Test"	12,000
"	No. 3, "Venereal Diseases, Microscopic Examination"	11,675
"	No. 4, "Venereal Diseases, Diagnosis and Treatment"	12,550
Pamphlet	No. 1, "Information for Men, Syphilis and Gonorrhoea"	53,340
"	No. 2, "Information for Young Women About Sex Hygiene"	39,090
"	No. 3, "Information for Parents, Teaching of Sexual Hygiene to Children"	48,190
"	No. 4, "Instructions for Preventing the Transmission of Gonorrhoea"	16,100
"	No. 5, "Instructions for Preventing the Transmission of Syphilis"	15,100
Stokes', "To-day's World Problem in Disease Prevention		8,695
"Prevention of Blindness in Babies"		41,890
"Abstracts of Current Venereal Disease Literature"		4,500
Posters		24,641
Pamphlet, "To the Sailor"		45,150
"	"To the Captain and Ship's Surgeon"	5,650

PUBLISHED IN FRENCH

Publication	No. 1, "Maladies Vénériennes, Circulaire Générale de Renseignements sur ces Maladies"	6,300
"	No. 2, "Maladies Vénériennes, Réaction de Wassermann"	6,400
"	No. 3, "Maladies Vénériennes, Examen Microscopique"	6,300
"	No. 4, "Maladies Vénériennes, Diagnostic et Traitement"	6,300
Pamphlet	No. 1, "Renseignements pour les Hommes, Syphilis et Blennorragie"	63,600
"	No. 2, "Renseignements pour les Jeunes Filles sur l'Hygiène Sexuelle"	29,300
"	No. 3, "Renseignements pour les Parents l'Enseignement de l'Hygiène Sexuelle aux Enfants"	42,700
"	No. 4, "Instructions pour Prévenir la Transmission de la Gonorrhée ou Chandepisse"	8,250
"	No. 5, "Instructions pour Prévenir la Transmission de la Syphilis"	8,250
Stokes', "Le Probléme Universel du Jour"		2,640
"Prévention de la Cécité chez les Nouveau-nés"		11,800
Pamphlet, "Au Matelot"		1,800
"	"Au Capitaine et au Médecin du Vaisseau"	1,625

Reports are being received monthly from each of the provinces, giving the number of cases treated in clinics and institutions, as well as the number of laboratory examinations. These reports show a constant increase in the number of admissions to clinics, which evidences the usefulness and necessity of the work.

The Chief of the Division of Venereal Disease Control visited the clinics and found them modern, fully equipped and properly conducted.

The provinces have complied essentially with the text of the agreement.

(5) HOUSING

Provided by Order in Council, P.C. 2997, dated December 3, 1918, the sum of $25,000,000 was allotted for housing loans to the provinces.

The total amount expended during fiscal year 1920-21 was $14,658,200.

A revote of $12,000,000 was approved by Parliament for fiscal year 1921-22 and arranged that when the total amount expended exceeded $26,658,200, namely $14,658,200 amount spent to 1920-21 and $12,000,000 voted in 1921-22, the advances should cease.

The amounts loaned to the provinces as of date March 31, 1922, were:—

Manitoba	$ 1,975,000
New Brunswick	1,525,000
Ontario	8,750,000
British Columbia	1,701,500
Quebec	2,056,620
Nova Scotia	1,100,000
	$17,108,120

The total number of houses erected, 3,874.

(Exclusive of activities of New Brunswick for year 1921-22.)

Number of houses under construction and planned to be built, 179.

Number of municipalities operating, 175.

The unexpended amount available as of date March 31, 1922, was $9,550,080.

A revote of $9,550,080 was approved by Parliament for fiscal year 1922-1923.

Housing Acts have been enacted by all of the Provincial Governments with the exception of Alberta.

Provincial Housing Schemes have been prepared by the Provincial Governments, and approved by the Federal Government, with the exception of Prince Edward Island and Alberta.

Numerous inquiries have been received from time to time from industrial organizations, prominent merchants, civic officials, soldier organizations, and other individuals, of the provinces of Prince Edward Island and Alberta, asking information as to the procedure for participating under the provisions of the Federal Loan.

Three years have passed since the Federal Loan was granted and the provinces of Manitoba, New Brunswick and British Columbia, have taken their full quota, which is an index of operations by the provinces generally, although some criticism was offered that the granting of the loan interfered with ordinary process of building houses by private enterprise, but not by builders themselves.

The Provincial Government of Quebec requested that the Quebec Housing Scheme (Act of the province of Quebec to provide for the construction of workingmen's dwellings, 9 George V, Chapter 10) be amended, as the Minister of Municipal Affairs of the province of Quebec reported that certain requirements in the General Housing Scheme of the province were preventing municipalities from taking advan-

tage of the Federal Loan for Housing and, therefore, desired that certain modifications be made to the following sections in the Provincial Housing Scheme, i.e.:—

1. The prescribed area of lots.
2. Proportion of cost of land to dwelling.
3. Restriction as to fences.
4. Construction.
5. Size of rooms.
6. Height and type of buildings.
7. Conversion of dwellings into stores, etc.

Inasmuch as the proposed changes related to matters which came within the direct discretion of the Provincial Government and, further, that the four conditions under which loans have been granted to the Quebec Government had been complied with, the amendment was passed by Order in Council, P.C. 2670, under date August 1, 1921.

Questions were raised by this province concerning the admissability of building duplex houses occupied in part by the building owner, and the other part rented. One of the four conditions imposed by the Federal Government in the housing project is that loans may be granted only for building houses, and purchasing land, to Provincial Governments, municipalities, housing societies with limited dividends, and owners of lots, *for the purpose of erecting homes for their own occupancy.*

The reason this condition is imposed is that there is no practical way by which the Government could restrict the rent which the builders of such a structure, containing more than one dwelling, could obtain from the other dwelling which he did not occupy and, of course, it would be quite improper for the Government to lend money to one person to build two houses and rent one at a speculative profit. However, it is provided in the Provincial Housing Scheme that duplex houses could be built, but under such conditions that each and every tenement would be a separate dwelling within the meaning of the Act and, therefore, loans made to each owner of each tenement or separate dwelling. If a municipality, or housing company, as provided for in the Act, chose to build such duplex houses, the foregoing condition would not obtain.

In the province of British Columbia the applications from municipalities were greatly in excess of funds available, proving that the Better Housing Scheme in this province has been signally successful. But, unfortunately the housing situation in several municipalities still remains acute.

In the province of Manitoba, under the provisions of the Provincial Housing Scheme, owners of houses were assisted in their sanitary installations to houses already erected, thereby creating valuable assets both from a monetary and health point of view.

In the province of Ontario, there are now ninety-nine muncipalities which have passed by-laws under the provisions of the Ontario Housing Act, 1919, and appointed Housing Commissions. Of these nineteen are cities, fifty are towns, seventeen are villages, and thirteen are townships. Seventy-two municipalities have constructed houses.

During 1921 the cost of constructing houses decreased probably twenty per cent below the cost of construction in 1920. While there was a considerable shortage of houses, the demand was nothing like the same for new houses in 1921 as that which had been in the two previous years, owing no doubt to the fact that industries were not as active in 1921 as they had been in the two previous years.

The amount secured by the province of Ontario from the Dominion Government for housing purposes was $8,750,000, and was to be loaned under the provisions of the Ontario Housing Act, 1919, at five per cent.

The total loans approved for houses erected in 1919, 1920, 1921, under the Ontario Housing Act, 1919, was $7,768,018.40, and for land purchased by Housing Commissions, $256,343.27. Of this $4,195,721.95 was loaned to seventeen cities; $2,583,343.27 was loaned to thirty-four towns; $364,579 was loaned to thirteen villages; and $880,748.26 was loaned to eight townships.

It has been the experience of the Provincial Government to have the monthly repayments, as a rule, remitted promptly on the 1st of each month.

It is interesting to note that 69 per cent of all the houses erected in 1919, 1920 and 1921, are either of brick veneer or of solid construction.

The total of houses erected during the period 1919 to 1922 was 2,771, and the loans made on same amount to $9,867,336.06, out of which 557 were erected under the Municipal Housing Act, 1920. Thus the average cost per house was $3,560.93.

Operations under the Ontario Housing Act, 1919, have now almost ceased, although a number of loans were approved before December 31, 1920, for houses which have not yet been erected. But it is expected that these houses will be erected this year. This would account for the difference in the amount actually borrowed from the Federal Government to that which has been advanced by the province to the various municipal authorities.

Seventy per cent of the houses erected under the Ontario Housing Act have been erected by persons owning lots, which lots were conveyed to the Housing Commission and a loan secured on same for the erection of a house for the full cost thereof. The plans for the houses being approved by the Housing Commission, and the the borrower making his own contract for the erection of the house.

Another method adopted was that of a Housing Commission purchasing land and erecting houses thereon, the layout of the land being approved by the said Commission. But this method has not been so successful, inasmuch as some of the Housing Commissions have erected houses without having purchasers for them, with the result that in a small number of cases some houses are still undisposed of. In other cases Housing Commissions have allowed persons to take the houses without any cash payment, but with merely some security for the first three years' payments. In a number of these cases the Housing Commissions have found it somewhat difficult to satisfy the persons who have taken the houses, and the Commissions have been put to some expense in altering houses.

Whilst from a theoretical point of view the development plan is the ideal one in connection with housing, from a practical point of view the other method has obtained much better results.

The Housing Director of Nova Scotia in his annual report for the year 1921 states that in comparing conditions as they are to-day with those which existed some years ago, it can safely be said that the Housing Act has been a success. It has been a boon not only to the homeseeker, but to those communities where it has been brought into operation and fulfilled in a large measure the purposes for which it was intended.

The general principles and standards recommended by the Federal Government were adopted by the province after careful consideration, not as ideals difficult to attain, but as the minimum standards ensuring health and comfort.

In the opinion of the Housing Director of this province, the tendency of the public is to invest their savings in bonds and Government securities, and it is probable that no adequate solution of housing problems will be arrived at until a larger proportion of the liquid funds of the country become available for mortgage loans.

The procedure adopted in dealing with applicants for the loan in this province was as follows:—

1. Application passed upon by Housing Commission and forwarded by Secretary of commission for approval of director.

2. Application for loan accompanied by plans and specifications inspected by Government architect before receiving approval of director.

3. Building lot is deeded by applicant for loan to Housing Commission and applicant may then proceed with the erection of house.

4. Estimates for progress payments to Contractor are made in accordance with following routine:—

First payment.—When foundations and piers are in and sewer and water connections made.

Second payment.—When building is framed, boarded and shingled, and exterior door and window frames placed in position.

Third payment.—When building has been plastered (two coats), chimneys and brick work completed and rough plumbing and wiring in.

Fourth payment.—When building has been completed according to plans and specifications and passed by Commission.

Fifth payment.—Thirty days after completion.

Recommendation for payment of progress estimates is made by the town or city building Inspector, and work is inspected by Government architect before the certificate of director is issued to the provincial auditor.

In dealing with the economic benefits of the Housing Scheme, it is stated in the report that by leaving aside for the moment the benefits which have been derived by the individuals who have secured homes on reasonable terms, what has been the material advantages to the communities which have adopted the Act? The city of Halifax may be taken as a fair example.

During the calendar year 1921 over 70 per cent of the building operations in the city were undertakings of the Housing Commission. Forty-nine contractors have participated in a fair share of profits. Employment has been furnished to approximately 300 carpenters, 440 sundry occupations including plumbers, lathers, plasterers, floor-layers, teamsters, etc. One hundred and twenty thousand six hundred dollars has been paid in wages by contractors, and over $443,490 has been distributed among contractors and firms supplying building materials, plumbing and electrical fixtures.

The Housing Act has been a great offensive against all sordid ugliness, and in addition to all its other benefits has added to the beauty of Halifax and the province.

It is further stated that all of the houses are of frame construction, the external walls being shingled, with the exception of two houses in Halifax, one of which is brick veneered and the other covered with stucco; many of the roofs having fire-resisting shingles, while others have the ordinary wood shingles.

A large percentage of the houses have hardwood floors and brick or hardwood mantelpieces.

All houses have bathrooms fitted with enamelled bath, basin and w.c., the kitchens having the usual sink, and in many cases laundry tubs as well. Where sewage system was not available, the houses have been provided with cesspools.

Where the houses have not been heated by hot air or hot water systems, base burners have been used and practically all the houses are lighted by electricity.

The Federal Department by co-operation in exchange of plans and current action with the Ministries of Health of Great Britain, Australia, New Zealand, South Africa, and Norway, mutual advantage has accrued to all concerned.

By request of the Canadian Red Cross Society various provinces have had housing lectures prepared by the Branch, as also manufacturing corporations have been advised from time to time on questions of community development for their personnel.

There are signs in Canada that the acuteness of the housing situation is passing, but the causes of this are mixed in their social significance inasmuch as office buildings and hotels, that were closed with the abolition of the bar, have been

converted into apartment houses and in many cases sanitary accommodation, lighting and ventilation are deficient; further there is an indication of overcrowding that must be considered very bad for health and morals.

As expressed by the leading public health authorities of the North American Continent, in the last analysis healthful homes are dependent upon the interaction of biologic, economic, social, educational and political forces, many of which are beyond the control of individuals. In a broad consideration of the problem, therefore, more attention must be given in the future to the numerous phases of heredity and eugenics, industrial organization and economic returns, sociological elements, educational opportunities, public health education, and political ideas as transmuted into legislative enactment and civic interest. It is insufficient to point out the existence of poor plumbing, leaking roofs, and unlighted rooms, the inroads of insects, the existence of alcoholism or drug addiction, the ignorance of individuals and their poverty, and the presence of the diseased and the defectives.

Vision must be directed to the deeper-lying causes responsible for these shortcomings. Much of the responsibility for low standards of homes must be transferred from the individual to the community which countenances, tolerates or condones them. The interdependence of human life and welfare demands the protection of the weak in the interest of the strong. The healthful home may be an expression of personality and individual resourcefulness, but its nature and limitations, its advantages and disadvantages, its harmony or maladjustment, its unhealthfulness or its healthfulness are indices of the public interest in the welfare of all manner of citizens, regardless of race, social or economic status.

STATEMENT SHOWING USE OF FEDERAL HOUSING LOAN IN THE PROVINCES

(Compiled from official reports) as of date March 31, 1922.

DR. JOHN A. AMYOT, C.M.G., Deputy Minister. B. EVAN PARRY, M.R.A.I.C., Supervising Architect.

Province	Amount payable on basis of 1911 census on $25,000,000 basis	Additional amount payable on basis of $31,250,000	Amount actually borrowed from Federal Government	Amount requested by municipalities	Amount allotted by Province	Amount advanced by Province	No. of houses built	No. of municipalities	No. of houses under construction	No. of houses to be built
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.				
Manitoba	1,580,534 79	395,133 69	1,975,000 00	1,175,634 00	.....	1,097,841 09	314	17	.....	33
New Brunswick	1,220,710 53	305,177 63	1,525,000 00	200,000 00	1,165,000 00	693,700 00	107	14	.....	.....
Ontario	8,753,291 93	2,188,322 98	8,750,000 00	10,694,000 00	8,727,492 48	7,924,442 48	2,214	72	20	.....
British Columbia	1,361,521 59	340,380 40	1,701,500 00	.....	1,758,050 00	1,697,300 00	475	32	89	.....
Quebec	6,949,255 01	1,737,313 75	2,056,620 00	23,675,000 00	7,398,000 00	2,316,585 00	511	33	.....	.....
Nova Scotia	1,707,931 14	426,982 79	1,100,000 00	1,118,460 00	981,720 00	864,142 00	253	7	.....	37
Saskatchewan	1,708,257 23	427,064 31	Neither Government nor any municipality of this province has taken any action. Vide Deputy Minister of Municipal Affair's Report, 15 Dec., 1921.							
Prince Edward Island	325,144 45	81,280 11	No Housing Scheme submitted, therefore Act not operative.							
Alberta	1,299,714 03	324,928 51	No legislation enacted.							
Northwest Territories	64,110 99	16,027 75	" "							
Yukon	29,528 31	7,382 08	" "							
Total	25,000,00000	6,250,000 00	17,108,120 00	36,863,094 00	20,030,262 48	14,594,010 57	3,874	175	109	70

NOTES :

A revote of $9,550,080.00 was approved by Parliament for fiscal year 1922-23.

New Brunswick has not reported activities of fiscal year 1921-22, so figures given are those for year 1920-21.

Ontario has built 557 houses under the provisions of the Municipal Housing Act in addition to those herein given under the Ontario Housing Act.

THE ECONOMY OF HOUSING

An intermediate issue of the fortnightly record of the British National Housing and Town Planning Council, dated February 4, is devoted to correspondence which has passed between the secretary of the council and Sir Charles Ruthen, Director-General of the Housing Department of the Ministry of Health. The following points are stated as embodying the considered judgment of the leading members of the council:

1. The first 100,000 houses completed by the close of 1921 are infinitely better houses than those built for the working classes before the war. Instead of the pre-war urban houses, built twenty, thirty and forty per acre, during the past three years a limit of twelve to the acre has been set; each house is thus provided with a valuable garden at a minimum of expense. More economical methods of developing sites has enabled the cost of roadmaking to be reduced by grading them as arterial, secondary, and residential roads. On the whole, the new houses are extremely plain and simple in form; architects have shown wisdom in planning rooms broad and not deep to avoid dark corners. The sizes and heights of rooms have been a fruitful source of difference between the housing committees of local authorities and the Ministry of Health; the view generally held by local authorities is that economy in this respect has been carried too far. Without the approval of the Ministry local authorities have not been able to make a single contract; those concerned can testify to the meticulous care with which items amounting to a few shillings have been rigorously excluded.

2. The cost of the first 100,000 houses has been too great. Concerning this high cost the charge of profiteering in the general sense most certainly cannot stand as against the architect; and even in the other great sections of the building industry—both operative and employing—it is difficult to establish the charge of profiteering. In 1919 and 1920, and early in 1921, the costs of production were extremely high in all industries. Throughout the whole country there was a kind of vicious circle of determination to demand high prices, and if the charge of profiteering is to be regarded as valid, then it must be brought against all those engaged in every industry. It becomes so general a charge that it loses all definite point and critical value. The real doubt arises concerning the wisdom of the Government and local authorities in pressing forward with their housing schemes in a period of high building costs. On this point only one conclusion is possible, relating to the carrying into effect of certain promises concerning social betterment, given to those members of the community who poured out from poor homes to serve their fellow men, and who on returning from the war found themselves and their families faced with a deplorable famine in housing accommodation. The Government, therefore, rightly proceeded to redeem their pledges. Each week now witnesses the falling of prices towards a post-war normal level. It is already possible to secure tenders for parlour cottages at £500. Assuming that £1 to-day buys the same commodities as 10s. did before the war, the £500 cottage may be regarded as the equivalent of the £250 pre-war cottage. The period of high building cost has clearly come to an end. In the opinion of the Council the verdict of history will be that whilst it has been a costly business to build the first 100,000 houses it would have cost infinitely more in social discontent and national humiliation if housing pledges had been broken or evaded. The council also feel that when the public are fully cognizant of the real merits of the houses built, and to be built, by 1,200 local authorities under the Housing Act of 1919, we shall as a people begin to be justly proud of the honourable fulfilment of pledges redeemed throughout a period of unprecedented economic difficulty.

(6) OPIUM AND NARCOTIC DRUGS

In connection with the administration of the Opium and Narcotic Drug Act, during the year, the following number of the various licenses were issued:

Import licenses	186
Export licenses	34
Wholesale druggists' licenses	112
Retail druggists' license to manufacture	57

The total amount of fees collected from all licenses issued during the year amounted to $3,850.

Through the close supervision of the licensing system and the following up of all sales of narcotics, from wholesale druggist to the retailer, physician, dentist and veterinary surgeon, the department has been able to reduce by a very substantial amount, the quantity of narcotics imported through the regular channels during the year, in comparison with the quantity imported from year to year since the licensing system was inaugurated in the year 1919, as will be noted from the following table:—

—	1919	1920	1921	1922
Cocaine	12,333 ozs.	6,968 ozs.	3,310 ozs	2,952 ozs.
Morphine	30,087 "	28,198 "	12,124 "	8,774 "
Crude opium	34,263 lbs.	13,626 lbs.	2,953 lbs.	1,700 lbs.

In the ordinary course of business, a number of Canadian manufacturers of pharmaceuticals export to their customers in other countries small quantities of narcotics from time to time. Most of these drugs exported are in manufactured form and are contained in a mixture with other ingredients, or in tablet or pill form. As a general rule, orders for narcotics are received with a general order for drugs of various descriptions. Before, however, a license can be granted to a Canadian manufacturer to export narcotics, he must furnish the department with a written permit from his customer, issued by the authorities of the Government of the importing country, permitting the importation of the drugs in question, and all such permits must state definitely that the drugs intended for import are required for medicinal or scientific purposes. The above arrangement, with regard to the export of narcotics, has been brought about through the Council of the League of Nations, which body is charged with dealing with the opium question.

The following table shows the amount of narcotics exported from Canada during the twelve months ended March 31, 1922:—

Drug	Destination	Quantity
Tincture of opium	Lima, Peru	5 lbs., 3,840 grains.
	Newfoundland	6,469 grains.
Cocaine	Newfoundland	92 grains.
	England	3,359 grains.
	Lima, Peru	96 grains.
	New Zealand	1,500 tubes anocaine with cocaine.
Morphine	Newfoundland	8,870 grains.
	South Africa	375 "
	England	151 "
	Lima, Peru	821 "
Diacetyl morphine (heroin)	Newfoundland	66½ "
	England	815 "
Codeine	Newfoundland	5,125 "
	England	1,458 "
	Lima, Peru	500 "

In so far as the trade in narcotics is concerned through the legitimate channels, the Department has absolute control through the system now in force whereby all sales of narcotics are reported to the Department and carefully tabulated, so that an accurate record is available at all times of the amount of these drugs received by every druggist, dentist, veterinary surgeon or physician in Canada. It is, therefore, a comparatively easy matter to follow up the disposition of these drugs with a view to confining the use of the same to legitimate medicinal or scientific purposes.

The problem, however, of dealing with the illicit traffic, is a much more difficult matter, as the latter supply is, of course, smuggled into the country by every conceivable means and device. Most of these illicit shipments are smuggled in by the crews on the incoming steamships, the drugs being carefully concealed below decks, either among the cargo or in the coal bunkers, etc. Quite a large proportion of such shipments are brought into the country by freight or cargo vessels, and particularly tramp steamers calling at Canadian ports for wheat cargoes, etc.

Most of the cocaine, morphine and heroin being smuggled into the country, comes from Europe and particularly Germany, and the bulk of the opium reaching Canada through illicit channels originates in China or Japan, and reaches this country through the ports of Vancouver and Victoria, B.C.

Considerable quantities of these drugs are also smuggled into the country by being concealed in such articles as electrical fixtures, statuettes, piping, etc. In other instances, drugs are concealed in bales of goods, or sometimes in barrels of olives or similar containers.

Contrary to general opinion, this drug traffic is not confined to the larger cities and towns, but is fairly general throughout the whole Dominion, extending from the Atlantic to the Pacific. There is not a Province or District in Canada that can be said to be free from this drug evil at the present time. Even in a settlement as far north as The Pas, Man., and in a large number of the small towns and villages along the National Transcontinental Line between Quebec and Cochrane.

This traffic is controlled almost altogether by large drug rings, who employ numerous agents to distribute the drug. Some of these agents simply act as a medium of distribution, between a dealer with a large stock and the small pedler, and work on a commission basis. The smaller pedler in turn does the drugs up in small powders or "decks", as they are generally known to the underworld, consisting of from one to three or four grains. These "decks" are sold anywhere from 50 cents to $3.00 a piece, depending altogether on the scarcity of the article in the district concerned.

When it is realized that the legitimate value of these drugs in quantities, at the present time, is between $4 and $5 an ounce for morphine and cocaine, and about $3 per pound for opium (which retails in the underworld at from $50 to $150 per pound) it will be seen that the profits of these illicit pedlers or traffickers, is enormous.

Some of these drug rings are international in character, having connections both in Europe and in America. Many of these smaller drug rings have extensive connections between such cities as Montreal, Toronto and the Pacific Coast or vice versa, also between large Canadian Cities and American centres such as New York, Chicago, Boston, Seattle, etc. These rings also have a secret code known only to the members of the underworld. They are thereby able to communicate with one another in the various parts of the country without the slightest possibility of any letters or telegrams, exchanged between them, being deciphered by the authorities.

Hundreds of young men and women, addicted to the use of these drugs, become slaves, so to speak, for these large traffickers, who engage them to carry these drugs between the different towns and cities, as these poor unfortunates, who act as the distributors, live more in fear of being shut off from their customary supply for personal use, than anything else, on account of the misery and suffering they would have to endure by the drug being cut off abruptly. This has been proven in many instances where persons of this character have been arrested and sent to jail, and eventually cured of the habit as they have expressed their joy on being free from the

craving for these drugs and more especially on being freed from the clutches of these unscrupulous individuals, who prey on the vices of humanity solely for the enormous profits derived from the illicit sale of these drugs.

Under the present law, the police are very much handicapped in so far as being able to take prompt and efficient action is concerned. In connection with this work, time is a most important factor.

Under the law, as at present in force, before a police officer can arrest an individual or search him, or search an automobile or other conveyance, or a building, warehouse or other premises, he must first go before a magistrate, or justice of the peace, and obtain a search warrant. It so happens, in many instances, that the police receive information that there are drugs being transported by cab or automobile, and if they are in a position to take immediate action, in many instances they would be successful in recovering large quantities of these drugs, which are being transported solely for illicit purposes, but in cases of this nature the police are powerless to act.

In many other cases where prompt action is necessary for the police to intercept or seize illicit stocks of these drugs, it so happens that it might be a Saturday afternoon or a Sunday, or a legal holiday when it is a very difficult matter to locate a magistrate or justice of the peace, the same thing would apply at night.

These drug traffickers know that the police are powerless to act without a warrant and that they are, therefore, fairly safe for a reasonable time, and it is one of their customs to keep changing the hiding place of these drugs from building to building or room to room, as the case may be, knowing that if the police obtain a warrant to search a certain building at a certain address, that such a warrant would not be valid to search another building at a different address.

Representations have been made to the department from time to time by the Commissioner of the Royal Canadian Mounted Police, and also by most of the chiefs of police of the large cities throughout the Dominion, that the Act should be amended in order to empower the police to search for these drugs without the necessity of having to first secure a search warrant so that they might be in a position to take prompt and efficient action in all cases where they have reason to believe that stocks of these drugs are being concealed or transported for illicit purposes.

The following table shows the number of prosecutions handled by the Royal Canadian Mounted Police on behalf of the Department of Health during the fiscal year ended March 31, 1922:—

Province	Doctors	Druggists	Veterinary Surgeons	Illicit Dealers (Other than Chinamen)	Chinamen
British Columbia	4	.....	.....	11	300
Alberta	3	.....	1	28	59
Saskatchewan	.....	.....	.....	15	73
Manitoba	.....	6	.....	9	.....
Ontario	2	.....	.....	12	52
Quebec (not including Montreal)	7	.....	.....	4	10
Montreal	3	5	3	82	123
New Brunswick	4	.....	.....	1	9
Nova Scotia	.....	.....	.....	1	8
Prince Edward Island	.....	.....	.....	.....	.....
Total	23	11	4	163	634

or a total of 835 convictions.

In connection with the number of prosecutions handled by the federal police, it is of interest to note that of the 835 convictions secured, 634 were Chinamen, and of the 163 illicit dealers, other than Chinamen, approximately 50 per cent were foreign born.

Statistics covering the number of convictions for infractions of the Opium and Narcotic Drug Act, other than by the federal police, are not available for the fiscal year. The following table, however, shows the number of convictions for infractions against the Act for the judicial year ended September 30, 1921, including federal, provincial and municipal prosecutions. Of this number 660 were federal cases.

Breach of Opium and Drug Act	1,006
Keeping opium den	69
Frequenting opium den	260
Smoking opium	104
Illegal possession of	350
Giving and dispensing drugs	3
Selling opium	72
Total	1,864

It is the intention of the department to endeavour to arrange for closer co-operation between the provincial, municipal and federal authorities during the coming year with a view to dealing more effectively with this illicit drug traffic.

(7) PROPRIETARY OR PATENT MEDICINES

During the fiscal year ended March 31, 1922, licenses were issued authorizing the sale throughout Canada of approximately 4,100 preparations to which registration numbers were assigned under The Proprietary or Patent Medicine Act.

Periodically samples of these medicines were procured on the open market and analyzed at the departmental laboratory, for the purpose of ascertaining whether they were being manufactured in accordance with the terms of registration, and as a consequence a number of manufacturers were successfully prosecuted, the offences being chiefly for lack of medication in alcoholic preparations and for employing scheduled drugs in excess of the proportions permitted.

In addition, a large quantity of goods was seized and confiscated, over eight thousand cases of a certain alcoholic tonic valued approximately at $40,000 being taken from one manufacturer. Another who procured registration for a headache powder as containing 2 grains of acetanilide per maximum dose, and raised the quantity of this drug to 7½ grains per maximum dose in the article as actually delivered to the consumer, was prosecuted and lost all of this extensively advertised preparation on sale in Canada.

Many shipments of medicines not in conformity with this law were intercepted by our inspectors and returned to the manufacturers, who were obliged to conform to requirements or withdraw their goods from sale.

The newspapers were perused for illicit advertising and advertisers made to revise advertisements which were held to contravene sections 7 (*e*) and (*f*), which sections provide in effect that no preparation subject to the provisions of this law may be represented as a cure and that no false or extravagant claims may be made for the article.

The fundamental principle of the Act in question is to require the manufacturer of proprietary medicines to place his preparation on the market so that the ordinary layman may understand what he is consuming. Therefore, section 2 (*d*) requires that the formula be printed on the labels and wrappers, or the article manufactured in accordance with a formula given in certain recognized pharmacopœias, or registered and licensed under this law. In the latter case the presence of potent drugs must be indicated on the label and wrapper and their quantity prescribed within limitations fixed by medical experts.

In the operation of this law, the department is pleased to note that it enjoys the co-operation and goodwill of nearly every druggist in Canada.

(8) DIVISION OF MEDICAL RESEARCH

The obtaining and installing laboratory equipment and supplies occupied the latter months of the fiscal year ended March 31, 1922, and has progressed so far as to allow of the commencement of research work.

During the coming year the activities of the division will be directed to the examination for potency of all curative sera and vaccines placed upon the Canadian market by all manufacturers of such products.

Standardization control of preparations of such drugs as ergot, digitalis, strophanthus, suprarenal glands and of pituitary body will be carried out in due course.

Bacteriological examinations of raw and canned foods, feces, milk, water, etc., will be carried out as occasion demands.

Pathological work will be largely confined to co-ordination of bacteriological requirements, although any type of work demanding special attention will be looked after.

As the organization of the laboratory proceeds, it is expected that certain lines of research will be prosecuted.

(9) DIVISION OF CHILD WELFARE

During the fiscal year under review, the Division of Child Welfare has co-operated with officials of the Department of Trade and Commerce, the Bureau of Vital Statistics, the Department of Agriculture and other departments.

The Provisional Executive Committee of "The Canadian National Council of Child Welfare," a voluntary association, intended to co-ordinate voluntary efforts for child welfare work in each and all of the provinces, held its first meeting at Ottawa on April 15, 1921, when the permanent executive committee was organized. This permanent executive committee held its first meeting at Ottawa, May 30, 1921, and arranged subsequently for "The First Annual Conference of the Canadian National Council on Child Welfare," which took place in the Windsor Hotel, Montreal, September 29 and 30, 1921.

PUBLICATIONS—GENERAL

At the meeting of the Dominion Council of Health, held in May, 1920, a unanimous request was made for original Canadian publications of a national character on maternal and child welfare. Immediate attention was given to this request and fifteen such publications have now appeared in English and seven in French. The remaining eight publications are being translated and will be issued as soon as possible. Requests for them have come in large numbers from every province and from the territories, and we are greatly indebted to the members of the Dominion Council of Health, to provincial and municipal officials, to the press, to the medical and nursing professions, to the clergy, to voluntary associations and to the general public, for their co-operation and assistance in placing our publications in the hands of Canadian fathers and mothers and others interested in child welfare.

THE CANADIAN MOTHER'S BOOK

Requests for this publication have shown no signs of falling off during the past twelve months, and further editions have been necessary, making a total issue to date of 150,000.

The Superintendent of Indian Education has requested and received twelve hundred copies of "The Canadian Mother's Book" to be distributed to mothers on the Indian reserves.

During the week of June 13, Film No. 98 of the Canadian Government Film News Service, which has been prepared to show some pages and pictures of "The Canadian Mother's Book," was released and appeared in the Regent Theatre, Ottawa, and other theatres throughout the Dominion.

LE LIVRE DES MERES CANADIENNES

The French translation of "The Canadian Mother's Book" was published on September 23. The demand for copies has been so great that the printing of a second edition was necessary.

LITTLE BLUE BOOKS—HOME SERIES

As several mothers, in writing letters to us, gave The Canadian Mother's Book the popular name, "The Little Blue Book," it was thought suitable to adopt that name for all our publications on child welfare.

As mentioned in last year's report, the revised MSS., of the above publications was submitted in March, 1921. On May 23, a third revision was submitted, after consultation with about twenty persons, including a number of Canadian mothers and fathers in their own homes, in different provinces, as well as officials of the National Gallery of Canada, the Natural Resources Department, the Printing Bureau, the Editorial Committee and others.

New material and new ideas received subsequently rendered a fourth revision necessary, which was submitted July 1 and a fifth and final revision was approved for printing, July 13. Proofs were received and revised in August and September and the first copies of the "Home Series" of "Little Blue Books" were received in time for the meeting of the Dominion Council of Health on October 19.

In January it was found that the first ten thousand of the above publications had been exhausted. A new and revised edition of ten thousand was ordered on January 11, and two thousand were received from the Government Printing Bureau on February 28, the remainder being received in March.

COLLECTION DU FOYER—LES PETITS LIVRES BLEUS

The French translation of the Home Series of Little Blue Books was put in hand at once and proceeded with as rapidly as possible. The first five numbers of the series were received in December and the sixth on March 3. Two thousand of the above have been received. The seventh is now in press.

The total number of child welfare publications issued to the public during the year under review amounted to 365,503.

CARDS FOR DISTRICT REGISTRARS

The "Card for the Baby's Mother," first issued last year, having been approved of by the Chief Provincial Medical Officers of Health and having been used in large numbers by mothers in requesting the "Canadian Mother's Book," both English and French editions, a revised copy of the same was approved on June 20, 1921, printed by the Government Printing Bureau and distributed. The card was again revised in December and another edition of 50,000 ordered.

Up to November 30, about 55,000 of these cards had been sent to the district registrars.

RHYMING POSTERS

Permission was obtained by cable from the National League for Health, Maternity and Child Welfare, London, England, to publish for distribution in Canada the National League's Series of "Rhyming Posters." These were prepared and printed on cards in our own department and issued on request to those in charge of "Fall Fairs," or "Baby Health Demonstrations," and to others.

PICTURES AND ILLUSTRATIONS—COLLECTION OF "BOOK JACKETS"

The value of the above in our pamphlets has been shown by our experience with "The Canadian Mother's Book." It was found difficult to get the right pictures for the "Home Series of Little Blue Books," and, therefore, with the assistance of the Librarians in the Library of Parliament and the Ottawa Public Library, a collection of some hundreds of book jackets has been made, with a view to any future series of "Little Blue Books."

PUBLICITY

Publications and articles of this division have been reviewed and republished in newspapers and magazines in Canada, Great Britain, India and the United States.

DOMESTIC SANITATION

Requests have been made to the Division during the year for help in matters relating to domestic sanitation. These requests fall under two general heads:—

1. Water Supply.
2. The disposal of garbage and household waste, particularly of human excreta.

1. *Water Supply.*—The waste of time, strength and work involved in carrying into the house all water for domestic purposes, handling it several times and then carrying it out again as waste water is a serious matter. The mother in the home has too much to do and often too little help.

Efforts have been made to get information as to a suitable and economical system of water supply for the farm home and other Canadian homes, where there is no municipal supply available, and the result has served to show that this inquiry should proceed.

2. *Disposal of Garbage and Waste.*—Much information on this subject has been received from the provincial authorities and from members of the Dominion Council of Health.

HOME SERVICE

The possibility of doing something to help the mother in her daily work in her home has been kept in mind and inquiries have been made on every available opportunity.

GOITRE

The prevalence of goitre in certain districts of several of the provinces of Canada and other important facts regarding goitre, such as the greater incidence in girls than in boys, and the comparatively early age at which goitre is observed was made the subject of a memorandum in January, 1921. It was then decided that a letter should be prepared, addressed to the Chief Provincial Medical Officer of Health in each province, setting forth these facts and further stating that a discussion on goitre would take place at the next meeting of the Dominion Council of Health, and requesting that the Chief Provincial Officers of Health would make further inquiries in their respective provinces and come to the Council meeting prepared to discuss the whole matter. This letter was despatched February 6, 1922.

CHILD WELFARE IN THE EARLY HISTORY OF CANADA

Some information has been placed on file, as a result of inquiries into this subject.

OUTPOST HOMES

The special difficulties of those who are beginning or maintaining homes on the "outposts" are great and their situation is one of national importance. There are such homes in all the provinces. Even in the oldest settled provinces we have information of homes from fifteen to twenty miles away from doctor or nurse. Conferences have been held during the year with provincial officials and others and some important information has been placed on file.

CHILDREN NEEDING SPECIAL CARE

A number of conferences have taken place with provincial officials as to industrial schools, auxiliary classes and other efforts to help children who need special care. Many requests have been made for publications in the interests of these children and their parents.

THE LIBRARY

The departmental Library has been temporarily placed under the direction of the Chief of the Division of Child Welfare, and a Reference Reading Room has been prepared and is now in use.

The following is a statement of the volumes of periodicals, etc., at present available in the Library:—

Bound volumes of medical works	1,545	
Bound volumes of periodicals	275	
Bound reports	680	
Miscellaneous	303	
		2,803
Pamphlets not bound (approximate)	2,000	
Reports not bound	700	
		2,700

(10) FOOD AND DRUG LABORATORIES

The following statement shows number of samples collected by the food and drug inspectors of this department and examined at the laboratories during the twelve months ended March 31, 1922:—

DISTRICTS IN WHICH COLLECTED AND EXAMINED

Name of article	Ottawa	Halifax	Montreal	Winnipeg	Vancouver	Total samples
Alcohol	2	3				5
Almond paste					1	1
Amigo	1					1
Animal products	6					6
Apple cider	1					1
Asthma remedy	1					1
Bacon	1		3			4
Baking powder	9		3			12
Basic slag	9					9
Bay rum	3					3
Beans	36	5		40	401	482
Beer	2			2		4
Biscuits	1					1
Bologna sausage	1	1				2
Borax compound	1			3		4
Brandy	1					1
Bread improver	1					1
Butter	273		41	21	3	338
Camphorated oil	6	24		15	1	46
Calc. acid phosp		1		2		3
Candy material					5	5

DISTRICTS IN WHICH COLLECTED AND EXAMINED—*Continued*

Name of article	Ottawa	Halifax	Montreal	Winnipeg	Vancouver	Total Samples
Canned corn	6				1	7
Canned cherries					1	1
Canned fruits	5					5
Canned goods	11		1			12
Canned peas			1		2	3
Canned strawberries					2	2
Cans	2					2
Capsicum	1					1
Cascara	1					1
Caviar			3			3
Cayenne	3					3
Cereals	6					6
Cheese	25		3			28
Chocolate	7	1			3	11
Codeine syrup			1			1
Coffee	25				1	26
Coffee substitute			1			1
Cod liver oil	5					5
Concentrated maple extract			1			1
Cream	6		5		4	15
Cream of tartar	3			4	1	8
Currants				1		1
Custard powder	1					1
Cyder	1				1	2
Diabetic flour	4				1	5
Disinfectant	3					3
Drugs	429	7	2		75	513
Drugs, crude		4				4
Dubbin	5					5
Dyes	2					2
Egg albumen	33				8	41
Eggs	4			1	31	36
Evaporated apples	1				19	20
Extract of ginger			2			2
Extract of lemon	5		2	1	3	11
Extract of whip pwd	1					1
Feeding stuffs	52	16	15	38	54	175
Fertilizers	33	16	9		20	78
Figs	4				8	12
Fish	2				3	5
Flavouring extract	4	9		10		23
Flax seed	1					1
Floor wax	1					1
Flour	2					2
Fruits, evaporated and dried				39		39
Gasoline	1					1
Gelatine	31					31
Gin					1	1
Ginger, tincture				12		12
Gluten flour	2					2
Glycerine			13			13
Ground cloves	1			1		2
Ham and bacon	6		6			12
Hamburg steak	5					5
Headache powders	8					8
Helps feeds	1					1
Herveys prep. med	10					10
Herring	4					4
Honey	24		1	11	2	38
Hydrogen of peroxide	1					1
Ice cream					1	1
Icing sugar	4					4
Infallible oil	1					1
Infant food	1					1
Jam	30	1	1	6	8	46
Jamaica ginger		1				1
Jelly	3					3
John Collins	1					1
Ketchup	33		9			42
Kivachwhip base	1					1
Lacquer	1					1
Lactose	1					1

DISTRICTS IN WHICH COLLECTED AND EXAMINED—*Continued*

Name of article	Ottawa	Halifax	Montreal	Winnipeg	Vancouver	Total samples
Lard	1			9		10
Laying mash	1					1
Lemon squash	2					2
Lime juice		1				1
Liquor	1			90	5	96
Lobster	4		1	20		25
Lye	4					4
Magnesia of milk	4					4
Malt extract	2					2
Multo cream	1					1
Malt products	4	13			4	21
Malt vinegar	4					4
Mana			2			2
Maple butter	2			10		12
Maple products		13			4	17
Maple sugar	17		3	2		22
Maple syrup	49		12	18		79
Marmalade	2					2
Mate	1	1				2
Meat	4					4
Medicines	13	3			1	17
Milk	21	5	9	1	7	43
Milk sugar	1					1
Mineral water	6					6
Molasses	20		9			29
Molasses feeding			1			1
Monotype metal	3					3
Mustard	1			1		2
Nokit	1					1
Narcotic drugs other than opium	14		1	54	30	99
Nutmeg	6					6
Oleomargarine	10		5			15
Olive oil	3	1	1	11		16
Oranges, fresh					39	39
Ovaltiae	1					1
Paint	11					11
Paint oil	3					3
Panomalt	3					3
Paprinka	1					1
Pain killer			1		1	2
Papine					1	1
Pepper, black	16		3			19
Pepper, white	20		7			27
Pepper, ground				26		26
Pepper, shells	2					2
Phramalt	1					1
Pharmalt dextrose maltose	1					1
Pie filler	1					1
Poison	1					1
Polish cream	1					1
Ponzo	1		1			2
Pork and beans	4					4
Prairie wash	1					1
Preservatives	1					1
Raisins				3		3
Rice mash					2	2
Rice and yeast mixt					1	1
Root beer	1					1
Rum	1					1
Salad oil	1					1
Salmon	4			2		6
Salt petre	1					1
Sausages	123		19	27	15	184
Sausage color	4					4
Seidlitz powder	1					1
Shoe blacking	3					3
Shorts	1					1
Silk	3					3
Smoked fish				2		2
Smoke essence	1					1
Soap	26					26
Sodium carbonate					1	1

DISTRICTS IN WHICH COLLECTED AND EXAMINED—*Concluded*

Name of article	Ottawa	Halifax	Montreal	Winnipeg	Vancouver	Total samples
Spirits of nitre	4			11		15
Strychnine sulphate				1		1
Sugar	9				44	53
Syrup	25					25
Syrup of hypophos	8					8
Tatrazine	2					2
Tea	1					1
Tincture of gentian			1			1
Tincture of iodine	1				13	14
Tincture methyl orange	1					1
Tincture of opium	1					1
Tincture of orange	1					1
Tirch flour	1					1
Tissue	2					2
Tobacco	1					1
Tonique wines	71		5		1	77
Vanilla extract	2				10	12
Vegetable soup	4					4
Vinegar	3	20		64	22	109
Walnuts					29	29
Water	13	4				17
Weiners	2					2
Wheat	1					1
Wheat bran					3	3
Wheat shorts					5	5
White middlings	1				1	2
White powder	1					1
Wines	16			13	2	31
	1,831	150	204	572	902	3,659

During the war, large quantities of beans known as Burma or Rangoon beans were being imported. This variety of bean often contains hydrocyanic (prussic) acid in dangerous amounts. All importations of such beans were examined and, if any of the samples showed more than 20 milligrams of hydrocyanic acid per 100 grams of beans, they were refused entry into the country. As a result of this examination and rejection when necessary, this variety of bean is not now being imported. The most of these samples were examined at Vancouver, as this is the main port of entry from the Orient.

The large number of butter samples reported are nearly all submitted by the Department of Agriculture dairy inspectors and fee of analysis paid for same.

During the winter season, fresh Chinese eggs were being imported and complaint was made that their quality was inferior.

The matter was referred to the Egg Branch of the Department of Agriculture but as their law and regulations did not cover the importation of foreign eggs, they were examined under section 7 (2) of the Food and Drugs Act and they were found to violate section 3 (1) (*d*), which reads as follows:—

> "Food shall be deemed to be adulterated within the meaning of this Act if it consists wholly or in part of any diseased or putrid or rotten animal or vegetable substance, whether manufactured or not".

A large shipment of these eggs was refused entry at Vancouver as being unfit for food under the above quoted section. A large percentage was bad and the shipment was subsequently exported to the United States.

During the month of January, the citrus crops in California were frosted and the United States federal food officials examined shipments of oranges in interstate trade, and found that the frost had so damaged many of these as to make them unfit for use as, when oranges are frosted and show more than a 20 per cent shrinkage in 15 per cent of the samples examined, they are deemed to be unsound and unfit for

ordinary use. Following advices received from the United States federal authorities, incoming shipments were examined by the officials of this department and, where found to be damaged by frost, entry into Canada was forbidden. In one case where a consignment of oranges entered Canada and was found to be so damaged, destruction was ordered and carried out.

Following upon complaints regarding the composition of coffee, molasses and soft drinks, special collections of these articles were made and examined as follows:—

Name of article	In what district collected					
	Ottawa	Halifax	Montreal	Winnipeg	Vancouver	Total
Coffee	72	26	5	29		132
Molasses	285	41		43	47	416
Soft drinks	1,182					1,182

A collection of coffee was made in the province of Quebec, following a complaint that much of the so-called coffee offered for sale was a mixture containing chicory, roasted grain; the result of analysis sustained the complaint. Legal action was taken in all cases found to violate the law and penalties imposed. Many of the smaller storekeepers in country places desire to sell a so-called cheap coffee and they are furnished with a compound article which, as a rule, the furnisher sells correctly marked but the retailer, either through carelessness or ignorance, sells as coffee and thereby gets into trouble.

The remarks above regarding coffee apply to the collection of molasses. The adulteration complained of in molasses was the addition of glucose, which is deemed to be the substitution of a cheaper or inferior article, in some cases to the extent of 50 per cent and sold as molasses instead of as molasses compound.

Our regulations require that all added colour in soft drinks (except caramel), be declared on the label; also if saccharine replaces sugar as a sweetener, this has to be declared. Our examination showed that many soft drinks were on the market which contained both added colour and saccharine without declaration, and all manufacturers whose goods did not comply with the law were warned that if on further examination, they are found violating the Act, action will be taken to enforce the law by applying penalties.

The total number of prosecutions entered for violation of the Food and Drugs Act during the year 1921-22 is 225. Of this number 203 have been completed, leaving 22 in progress:—

Baking powder	2	Obstructing officer	1
Butter	1	Pepper	10
Camphorated oil	4	Personating	1
Cloves	2	Sausages	49
Coffee	23	Spirits of camphor	15
Cream	3	Sugar	1
Glycerin	1	Sweet spirit of nitre	1
Icing sugar	1	Tincture benzoin compound	2
Ketchup	8	Tincture of iodine	23
Maple sugar	4	Vinegar	2
Maple syrup	6	Whiskey	1
Molasses	64		
	119		106

Total: 225

RÉSUMÉ

Incomplete	22
Appealed	4
Convictions	68
Convictions of furnisher	15
Voluntary payments	96
Dismissed by court	1
Withdrawn	19
	225

(11) FINANCIAL STATEMENT

STATEMENT OF EXPENDITURE FOR THE FISCAL YEAR 1921-22

Service	Gross Expenditure	Refunds to Appropriations	Net Expenditure
	$ cts.	$ cts.	$ cts
The administration of the acts respecting food and drugs, honey and maple products, and opium and narcotic drugs	82,413 45	2,414 60	79,998 85
Proprietary or patent medicines	4,379 10	..	4,379 10
Marine hospitals, including grants to institutions assisting sailors	95,504 24	4,328 06	91,176 18
Quarantine; salaries and contingencies of organized districts; public health in other districts; Tracadie and D'Arcy Island Lazarettoes; Public Works Health Act	263,116 97	1,762 09	261,354 88
Immigration medical inspection	50,036 35	38 64	49,997 71
Research; maintenance, replacements, supplies and assistance for a research laboratory	4,373 09		4,373 09
Venereal diseases	195,313 37		195,313 37
Medical Research Committee	1,387 45		1,387 45
Civil government	135,531 10		135,531 10
" " contingencies	70,306 17	2,769 20	67,536 97
Provisional bonus allowance	33,904 81	443 44	33,461 37
Miscellaneous gratuities	494 97		494 97
Reclassification arrears	13,915 39		13,915 39
Superannuation No. 4	665 33		665 33
Canadian National Council of Child Welfare	1,000 00		1,000 00
	952,341 79	11,756 03	940,585 76

STATEMENT OF REVENUE COLLECTED FROM VARIOUS SOURCES FOR THE FISCAL YEAR ENDED MARCH 31, 1922

Service	Total Revenue	Refunds	Net Revenue
	$ cts.	$ cts.	$ cts.
"A"—Food and drugs	9,807 65		9,807 65
"B"—Opium and narcotic drugs	30,787 77	954 95	29,832 82
"C"—Fertilizers	276 00		276 00
"D"—Patent medicines	7,197 45	72 00	7,125 45
"E"—Sick mariners' dues	132,307 03	579 88	131,727 15
"F"—Casual revenue	2,134 38		2,134 38
Total	182,510 28	1,606 83	180,903 45

"A"—FOOD AND DRUGS REVENUE FOR 1921-1922

——	Analysis	Fines and forfeitures	Costs	Total
Nova Scotia	67 00			67 00
New Brunswick	44 00	75 00	30 00	149 00
Quebec	125 00	2,970 00	1,425 00	4,520 00
Ontario	2,629 15	900 00	305 00	3,834 15
Manitoba	161 00	200 00	80 00	441 00
Saskatchewan	25 15	25 00	10 00	60 15
Alberta	18 00			18 00
British Columbia	149 35	250 00	310 00	709 35
Foreign	9 00			9 00
Total	3,227 65	4,420 00	2,160 00	9,807 65

"B"—OPIUM AND NARCOTIC DRUGS REVENUE FOR 1921 1922

—	Business Licenses	Import Licenses	Export Licenses	Fines and Forfeitures	Total
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia	120 00			9 83	129 83
New Brunswick	140 00			1,500 00	1,640 00
Prince Edward Island	5 00				5 00
Quebec	1,075 00	500 00	25 00	9,174 04	10,774 04
Ontario	1,070 00	215 00	25 00	1,478 50	2,788 50
Manitoba	265 00			700 00	965 00
Saskatchewan	70 00			3,971 80	4,041 80
Alberta	175 00			3,330 00	3,505 00
British Columbia	110 00			6,773 60	6,883 60
Foreign	55 00				55 00
	3,085 00	715 00	50 00	26,937 77	30,787 77
Less refunds	5 00			949 95	954 95
Total	3,080 00	715 00	50 00	25,987 82	29,832 82

"C"—FERTILIZERS REVENUE FOR 1921 1922

—	Licenses	Brands	Total
Nova Scotia		2 00	2 00
New Brunswick	48 00	2 00	50 00
Quebec	56 00	12 00	68 00
Ontario	88 00	8 00	96 00
British Columbia	8 00	2 00	10 00
Foreign	40 00	10 00	50 00
Total	240 00	36 00	276 00

"D"—PATENT MEDICINES REVENUE FOR 1921-1922

—	Fines	Registration Fees	License Fees	Total
Nova Scotia		80 00	61 00	141 00
New Brunswick		20 00	127 00	147 00
Prince Edward Island		2 00	1 00	3 00
Quebec	205 00	804 00	1,557 00	2,566 00
Ontario	67 45	672 00	1,857 00	2,596 45
Manitoba		32 00	101 00	133 00
Saskatchewan		24 00	31 00	55 00
Alberta		32 00	38 00	70 00
British Columbia		86 00	142 00	228 00
Foreign		350 00	908 00	1,258 00
	272 45	2,102 00	4,823 00	7,197 45
Less refunds		32 00	40 00	72 00
Total	272 45	2,070 00	4,783 00	7,125 45

"E"—SICK MARINERS' DUES REVENUE FOR 1921-1922

—	Total Revenue	Refunds	Net Revenue
Nova Scotia	31,744 57	188 42	31,556 15
New Brunswick	15,740 56	4 00	15,736 56
Prince Edward Island	525 00	0 54	524 46
Quebec	42,630 07	280 86	42,349 21
British Columbia	41,666 83	106 06	41,560 77
Total	132,307 03	579 88	131,727 15

"F"—CASUAL REVENUE FOR 1921-1922

Collections for treatment of sick mariners in 1920-21 and 1919-20—		
Department of Naval Service	$ 19 00	
Department of Marine and Fisheries	17 00	
Department of Public Works	160 43	
		$ 196 43
Adjustments of bonus due to classification		789 83
Miscellaneous refunds to previous years appropriations		101 89
Fumigation certificates		15 00
Sale of boat		1,000 00
Sundry sales		7 83
Exchange premiums		23 40
Total		$2,134 38

STATEMENT Showing the Net Amount of Sick Mariners' Dues Collected at each Port and Outport

PROVINCE OF NOVA SCOTIA.

Port and Outports.	Net Revenue.	Port and Outports.	Net Revenue.
Amherst	$	Halifax	22,793 38
River Hebert	9 10	Sheet Harbour	17 86
Pugwash	9 64	**Spry Bay**	4 00
Joggins Mines	35 88	Ingramport	27 98
		East Jeddore	2 00
	54 62	Moser's River	0 26
			22,845 48
Annapolis Royal	11 04		
Clementsport	5 94	Kentville	2 20
Port Wade	2 98	Kingsport	121 38
Bridgetown	5 96	Wolfville	2 88
	25 92		126 46
Arichat	11 64		
St. Peters	2 00	Liverpool	144 28
Petit de Grat	12 00	Port Medway	4 00
River Bourgeois	8 00	Port Mouton	4 00
Descousse	4 36		152 28
	38 00		
Baddeck	6 94	Lockport	49 30
Munroe's Point	243 64		
New Campbellton	13 42	Lunenburg	593 24
		LaHave	307 14
	264 00	Mahone Bay	12 56
		Riverport	24 62
Barrington Passage	8 00		937 56
Woods Harbour	10 00		
Clark's Harbour	10 06		
	28 06	North Sydney	1,233 22
Bridgewater	16 83	Parrsboro	165 26
		Apple River	84 48
Canso	29 83	Port Greville	30 02
Liscomb	2 00	Spencer's Island	19 86
Larry's River	4 00	Advocate Harbour	5 20
Queensport	3 14	Five Islands	5 82
Port Mulgrave	2 96		310 64
	41 93		
		Pictou	75 51
Digby	150 36		
Bear River	12 08	Port Hawkesbury	91 86
Westport	18 20	Port Hastings	14 34
Freeport	19 82		106 20
Tiverton	2 00		
	202 46		

STATEMENT Showing the Net Amount of Sick Mariners' Dues Collected at each Port and Outport.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Concluded.*

Port and Outports.	Net Revenue.	Port and Outports.	Net Revenue.
Port Hood		Weymouth	15 70
Chetlcamp	20 54	Church Point	3 08
Margaree	6 00	Meteghan	12 88
Grand Etang	6 00	Belliveau's Cove	49 36
	32 54	Salmon River	4 00
			85 02
Shelburne	30 92		
North East Harbour	0 68	Windsor	533 98
Sandy Point	45 28	Walton	428 47
		Hantsport	572 72
	76 88	Noel	8 60
			1,543 77
Sydney	2,472 13		
Louisburg	362 64		
		Yarmouth	437 46
	2,834 77	Pubnico	18 26
		Wedgeport	4 94
Truro		Abbott's Harbour	6 00
Little Bass River	6 04	Port Maitland	2 00
	6 04		468 66

PROVINCE OF NEW BRUNSWICK.

Bathurst	133 46	Newcastle	126 70
Caraquet	2 00		
Shippegan	2 00	Sackville	
		Port Elgin	3 35
	137 46		
			3 35
Campbellton	278 89		
Dalhousie	63 14	St. Andrews	31 56
Jacquet River	3 54	Grand Harbour	14 00
		North Head	35 92
	345 57	Lord's Cove	32 00
		Wilson's Beach	2 00
Chatham	334 80		
Richibucto	4 72		118 48
Buctouche	18 32		
		St. John	14,103 88
	357 84	St. George	40 02
		St. Martins	135 38
Fredericton	11 62	Beaver Harbour	14 00
		Chance Harbour	6 00
Moncton	7 64		
Hillsboro	223 02		14,299 28
Alma	35 40		
Albert	2 00	St. Stephen	68 20
	268 06		

PROVINCE OF PRINCE EDWARD ISLAND.

Charlottetown	309 37	Summerside	64 44
Souris	52 12	Miminegash	10 00
Crapaud	5 04	Alberton	13 30
Murray Harbour	9 04	Tignish	1 07
Georgetown	22 76		
Montague	33 32		88 81
New London	4 00		
	435 65		

STATEMENT Showing the Net Amount of Sick Mariners' Dues Collected at each Port and Outport.—*Concluded.*

PROVINCE OF QUEBEC.

Port and Outports.	Net Revenue.	Port and Outports.	Net Revenue.
Gaspé	64 04	Rimouski	23 10
Ste Anne des Monts	78 60	Matane	74 42
	142 64		97 52
Montreal	34,531 92	Sorel	5 80
Paspebiac	184 92	St. Johns	931 67
Carleton	2 00		
Port Daniel	7 68	Three Rivers	322 46
	194 60		
Perce	0 54		
Quebec	4,986 80		
Seven Islands	169 30		
Magdalene Islands	50 98		
Levis	67 58		
Montmagny	20 04		
Bonne Esperance	59 52		
Chicoutimi	136 84		
Port Alfred	631 00		
	6,122 06		

PROVINCE OF BRITISH COLUMBIA.

Nanaimo	1,220 96	Vancouver	22,870 35
Chemainus	153 70	Alert Bay	16 72
Union Bay	707 80	Powell River	146 92
Ladysmith	510 54	Britannia Beach	33 84
Port Alberni	294 70		23,067 83
	2,887 70		
		Victoria	14,173 57
New Westminster	318 46	Tofino	7 54
White Rock	21 54	Sidney	108 34
Steveston	2 00	Bamfield	6 00
		Quatsino	153 04
	342 00	Port Renfrew	13 62
Prince Rupert	471 37		14,462 11
Anyox	46 16		
Ocean Falls	283 60		
	801 13		

Respectfully submitted,

J. A. AMYOT,
Deputy Minister of Health.

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